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Transforming health professions education in sub-Saharan Africa in response to the COVID-19 pandemic: an assessment of preparedness for remote teaching and learning – Research Protocol

Mike Nantamu Kagawa, Shalote Chipamaunga-Bamu, Detlef Prozesky, Elliot Kafumukache, Rudo Gwini, Gwendoline Kandawasvika, Patricia Katowa-Mukwato, Rangarirai Masanganise, Louise Pretorius, Quenton Wessels, Kefalotse Dithole, Clemence Marimo, Aloysius Gonzaga Mubuuke, Scovia Nalugo Mbalinda, Lynette van der Merwe, Champion N. Nyoni

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Transforming health professions education in sub-Saharan Africa in response to the COVID-19 pandemic: an assessment of preparedness for remote teaching and learning – Research Protocol

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Abstract

Background: The current COVID-19 pandemic is affecting all aspects of society worldwide. To combat the pandemic, measures such as wearing of face masks, hand washing/sanitizing, restrictions on movement, and social distancing have been introduced. These measures have significantly disrupted education and particularly health professions education which depends on student-patient contact for clinical competence development. The wide-ranging consequences of the pandemic are immense, and the health professions education institutions in the Sub- Saharan Africa have not been spared.

Objective: This research aims to describe the preparedness of selected health professions education institutions in sub-Saharan Africa for remote teaching and learning during the COVID-19 pandemic. This paper reports on the research protocol that was developed to achieve this aim.

Methods: A mixed method design with a case study approach will be used. The ADKAR model of change was selected as the conceptual framework to guide/underpin the study. Eight higher education institutions in six sub-Saharan countries are participating in this study. Data will be collected from whole populations of academic staff, students, and administrators in the undergraduate Medicine and Nursing programmes through electronic surveys. Qualitative and quantitative data from each institution will be analysed as a case study, leading to an inventory of similar cases grouped for comparison. Quantitative data will be analysed for each institution and then compared to determine associations between variables and differences between programs, institutions, or countries.

Results: The research findings will provide information to Higher Education Institutions especially health professions education programs in Africa regarding the preparedness for remote teaching and learning to influence efforts related to online teaching and learning which is envisaged to become the new normal in the future.

The proposed research did not receive any funding and any costs involved were to be borne by individual consortium members at the various institutions. IRB approval was obtained at various times across the participating sites which were free to commence data collection as soon as local IRB was obtained. Data collection was scheduled to begin on October 1st, 2020 and end on February 28th, 2021.

Conclusions: By the time of submission of this manuscript, data collection was closed with a total of 1,099 participants enrolled. Data analysis had not commenced.

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Background: The current COVID-19 pandemic is affecting all aspects of society worldwide. To combat the pandemic, measures such as wearing of face masks, hand washing/sanitizing, restrictions on movement, and social distancing have been introduced. These measures have significantly disrupted education and particularly health professions education which depends on student-patient contact for clinical competence development. The wide-ranging consequences of the pandemic are immense, and the health professions education institutions in the Sub- Saharan Africa have not been spared.

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Results: The research findings will provide information to Higher Education Institutions especially health professions education programs in Africa regarding the preparedness for remote teaching and learning to influence efforts related to online teaching and learning which is envisaged to become the new normal in the future.

The proposed research did not receive any funding and any costs involved were to be borne by individual consortium members at the various institutions. Institutional Review Board (IRB) approval was obtained at various times across the participating sites which were free to commence data collection as soon as local IRB was obtained. Data collection was scheduled to begin on October 1st, 2020 and end on February 28th, 2021. By the time of submission of this manuscript, data collection was closed with a total of 1,099 participants enrolled. Data analysis had not commenced.

Keywords: COVID-19, Pandemic, emergency remote teaching, online learning, Africa.

Introduction

The WHO declared COVID-19 a global pandemic on 11 March 2020 and countries had to adopt containment and mitigation measures such as restrictions on movement of persons and human congregation [1, 2]. As a result, many educational events that required people to congregate were put on hold or cancelled and many African governments decided to close educational institutions in effort to contain the pandemic. Health professions education was no exception to these drastic measures, resulting in almost total disruption of planned teaching and learning activities. For most institutions in Africa, the COVID-19 related restrictions were too rapid to institute any well-planned contingency measures to ensure the continuity of teaching and learning activities. Many students experienced complete stoppage of planned teaching and learning activities for unknown lengths of time. Students and teachers were physically isolated and disconnected from the mainstream university settings, where face to face instruction was the dominant approach to teaching and learning. The COVID-19 pandemic arguably exposed the unpreparedness of many higher institutions of learning in Africa to alternative teaching and learning approaches [3].

Consequent to the COVID-19 pandemic, many Higher Educational Institutions (HEIs) adopted emergency remote teaching and online learning using a blended approach with reduced physical presence of students and educators on campus [4]. In order for educators to continue engaging with their students even in such a pandemic, creative approaches such as Emergency Remote Teaching (ERT) or formal online learning (FOL) needed to be adopted for continued teaching and learning. ERT is described as a short-term solution aimed at temporary access to instruction in a manner that is fast to set up and reliable during an emergency crisis like the COVID-19 pandemic, while FOL is a formal system of online learning which is well established takes months to prepare [5] While suggestions for formal online learning have taken on an increased impetus, they are not new, WHO in its publication in 2013 on Transforming and Scaling up Health Professionals' Education and Training, recommended formal online learning as a tool for interprofessional education, particularly if it is delivered in an open access environment [6].

Remote teaching and learning is however not without challenges even in the developed world. A Mckinsey & Company report of May 2020 noted that in the USA, students' ability to succeed in a remote-learning environment was affected by differences in household income; less than half (40%) of students from low-income households reported being able to access the necessary equipment for remote learning compared with 72% of students from high-income households while only 56% of students from low-income households reported having reliable internet access and only 45% reported that their home environment supported remote learning, compared with 77% and 64% of high-income students, respectively[7]. This pattern is unlikely to be different or even worse for students in most HEI in Africa, where additional issues such as power supply, internet connectivity, socio-cultural dynamics such as gender roles, educators' and leaners' competence related to remote teaching, and security may be of concern [8, 9].

Literature on how HEIs, especially in the health professions, have adopted formal online learning and/or emergency remote teaching and learning during the COVID-19 pandemic is fast emerging. However, most of this literature is emerging from the developed world with better resources and different socio-economic contexts from Africa? The experiences FOL/ERT from the less-resourced settings including those from SSA have been less documented even though students have somehow continued to engage in the learning process [10, 11]. Although HEIs in Africa continue to struggle to fully embrace formal online learning [8, 9], there have perhaps been efforts put in place to utilise platforms that are currently available to most students and teachers to ensure that learning materials, assessment, and feedback reach the intended audience. One such effort may be the use of ERT as a foundation to the development of comprehensive online learning in the long term as the 'new normal'. A question however arises which will guide this study; what progress has been made by HEIs in Sub-Saharan Africa to migrate to emergency remote teaching or online learning within the current situation created by the COVID-19 global pandemic?

The need to urgently respond to the effects of COVID-19, may mean that institutions adopt online learning approaches and ERT presents an opportunity for online learning even in circumstances of limited internet connectivity [5]. We argue that ERT and learning is a possible foundation for future formal online teaching and learning strategies in most higher education institutions in Africa and lessons learnt from the African experience could influence the adoption of appropriate online teaching and learning models in Africa.

This study aims to describe the preparedness of selected health professions education institutions in sub-Saharan Africa for remote teaching and learning during the COVID-19 pandemic. The purpose of this paper is to describe a research protocol that was designed by a consortium of health professions education researchers from eight HEIs in six countries across sub-Saharan Africa.

Conceptual Framework and research questions

The ADKAR model of change was selected as the conceptual framework underpinning the study [12, 13]. The ADKAR model focuses on change that is driven by the needs of the individual whereby an evaluation is done for the following attributes: Awareness of the need for change; Desire to participate in and support the change; Knowledge necessary for change; Ability/skills available or required to implement the change; and Reinforcement to sustain the change. The use of this model will reveal factors that are critical for the success of formal online learning and teaching [14-16]. Figure 1 illustrates how the ADKAR model that was used to generate the research questions to be answered in this study.

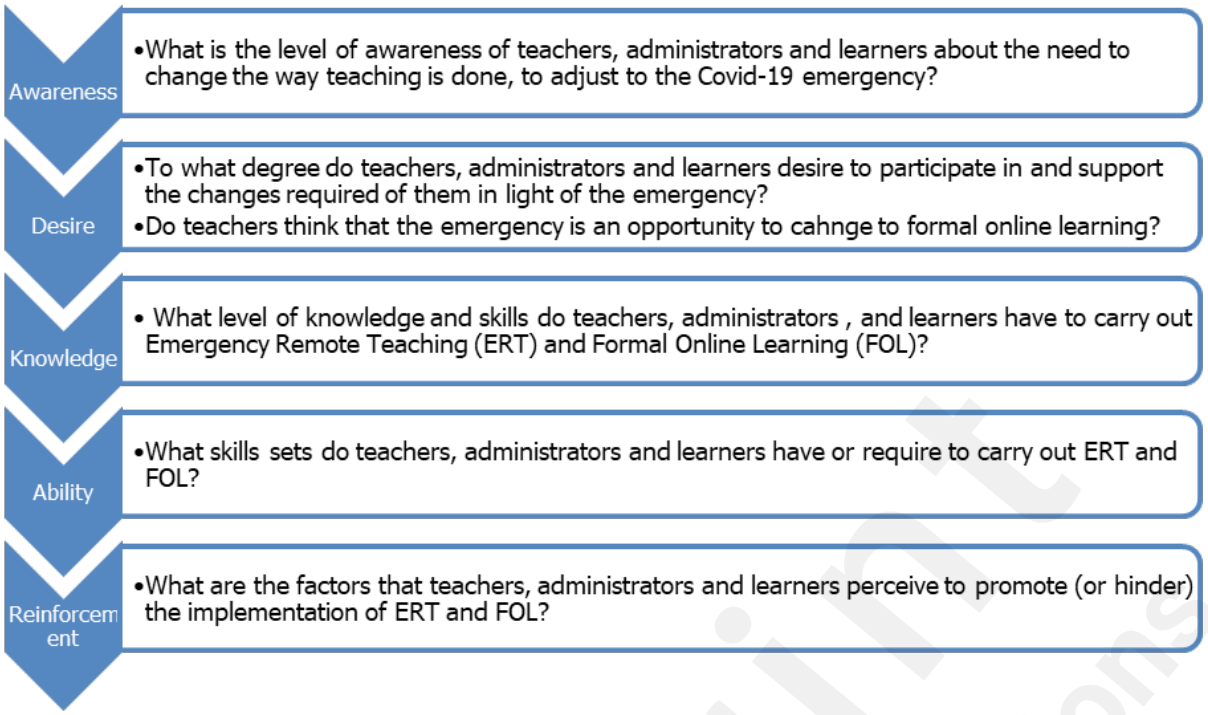

Figure 1; The conceptual framework based on the ADKAR model [11]

Methods

Study design

The study will use a concurrent mixed method design. The ADKAR organizational change model will guide the approach to data collection, analysis and reporting [13, 14]. Data will be collected for two purposes; first, to construct case studies from each institution that will provide an in-depth multi-faceted report on the preparedness of selected health professions education institutions in sub-Saharan Africa for remote teaching and learning during the COVID-19 pandemic and how they plan to conduct their training in the future [17]. Second, to compare quantitative data statistically, looking for associations between variables and differences between programs, institutions, and countries.

Study setting

The study will be conducted in eight health professions training institutions in six countries across sub-Saharan Africa namely: Botswana - University of Botswana; Namibia - University of Namibia; South Africa - University of the Free State; Uganda - Makerere University; Zambia - University of Zambia and Cavendish University; and Zimbabwe - University of Zimbabwe and the National University of Science and Technology.

Study population and sampling

The study population will consist of administrators, educators, and students from the medicine and nursing programs in the selected HEIs. In this study, total population purposive sampling shall be used targeting all the students, educators and administrators. In each of the selected HEIs, whole populations of administrators and educators of undergraduate medical and nursing students

before and during the COVID-19 pandemic will be invited to participate. Whole populations of the undergraduate medicine and nursing students will also be invited to participate in the study (N=9095).

Table 1: Study population

Group	Medicine	Nursing	Total
Administrators	134	41	175
Educators	690	238	928
Students	4866	3126	7992
Total	5690	3405	9095

Data collection

Data will be collected using questionnaires with structured and semi-structured elements [instruments attached as appendices]. Pretesting of instruments will be carried out using one person in each sampled program who will be excluded from the sampled study population. This will assist in validation of the instruments. The questionnaires will be sent by the most practical route to all persons sampled. All data will be entered into an electronic database.

Data analysis and presentation

Data analysis will be undertaken in stages. For each program quantitative data will be summarized using frequency distribution and averages, and qualitative data by thematic analysis.

In the first stage a case study will be constructed for each of the eight HEIs represented and will be presented discursively in paragraphs. Numbers will be used to indicate the strength of statements and quotes shall be used to emphasize common issues. The case study framework will be based on the ADKAR model (see appendix).

In the second stage, programs will be grouped according to the extent to which they have planned for and implemented ERT and FOL. This will allow comparison between categories of cases. Each institution will have the liberty to perform sub-group analysis based on data from the institution.

In the third stage the quantitative data about each of the five ADKAR elements will be analysed statistically to determine differences as well as associations between the programmes. This will strengthen understanding of the preparedness of selected health professions education institutions in sub-Saharan Africa for remote teaching and learning during the COVID-19 pandemic.

Results

We hope to obtain detailed information about the awareness, desire, knowledge, and ability (ADKAR) of the administrators, faculty and students for remote teaching and learning during the Covid-19 pandemic at selected health professions education institutions in sub-Saharan Africa.

This will be in the form of case-studies that will provide a detailed image for

each program/institution/country. Comparisons will be made, highlighting similarities, differences, and associations between the various ADKAR elements, to further enhance understanding of the level of preparedness by the various programs /institutions/countries.

Discussion

We propose to write a comprehensive report that will be shared with program leaders at the various participating institutions. It is hoped that the research findings will provide information to Higher Education Institutions especially health professions education programs in Africa regarding the preparedness for remote teaching and learning. It is believed that the research findings will influence efforts related to online teaching and learning which is envisaged to become the new normal in the future. Manuscripts will also be developed for submission to peer-reviewed journals to share our findings with a wider audience.

By the time of submission of this manuscript, data collection was closed with a total of 1,099 participants enrolled. Data analysis had not commenced.

Study limitations

In each institution only two of the many programs will be sampled, nursing and medicine. The information may not be fully representative of the level of preparedness of all the programs at these institutions. If response rates are low, statistical comparisons may not be possible or valid. This study involves a change in culture / tradition which is quite complex since multiple factors come into play: environment, teacher’s attitude towards ERT and student ability to remain focused and self-motivated, parental support and national support.

Funding

The study has not received any funding. Any costs involved were to be borne by individual consortium members at the various institutions.

Ethical considerations

Relevant safeguards required during research involving human research participants as outlined in the Belmont report of 1979 and the International Conference on Harmonization (ICH) of 2002, will be applied as the overarching ethics framework for this study [18, 19].

IRB approval was obtained at various times across the participating sites which were free to commence data collection as soon as local IRB approval was obtained. Data collection was scheduled to begin on October 1st, 2020 and end on February 28th, 2021. By the time of submission of this manuscript, data collection was closed with a total of 1,099 participants enrolled. Data analysis had not yet commenced.

Acknowledgement

We acknowledge the statistical support from Prof Gina Joubert and the technical support from Mr Bennie Botha at the University of the Free State.

Authors' contributions

MK participated in the drafting of the original protocol, data collection, refining and approval of the final manuscript; SCB was the team leader and conceived the idea, participated in protocol writing, revision and approval of the final manuscript; DP was involved in drafting of the original protocol, as a scribe for the committee and editing the text of the paper; CN participated in drafting the original protocol, analysis, manuscript writing, developing the electronic data capture tools and approval of final manuscript; RG participated in data collection and drafting of original manuscript; EK was involved in drafting the original manuscript, proof-reading and approval of final manuscript; KK participated critical reading of original manuscript draft, refining of the write up and final approval of the manuscript; PKM participated in critical reading, providing scholarly insights and refining the final manuscript, RM participated in data collection, drafting of original manuscript and proof-reading the final manuscript; IN was instrumental in data collection, refining of methods and refining of the final manuscript; LP participated in data collection, refining research instruments and proof-reading the final manuscript; QW was instrumental in data collection, refining the original idea, drafting of first paper and proof-reading the final paper; KD participated in data collection, critical reading of the paper and approval of final paper; CM participated in data collection, drafting of the methodology and critically reading final version of the paper; RHM participated in data collection, drafting of first paper and critically proof-reading the final version, AGM participated in modifying the original idea, refining the manuscript and proof-reading the final version of the manuscript; LvdM participated in developing electronic data capture tools, data analysis and refining of the final version of the paper.

Conflict of interest

The authors declare no conflict of interest.

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Appendix 1; The case study framework

1. Name: the university, country and type of program

2. An overall statement of how the measures taken to combat the pandemic affected the program: initially (NOTE: one of the main issues that will help us group the case studies)

3. How students report being affected:

- How they used to work
- Their Awareness of the need for change
- Their Desire to participate in and support the change
- How they had to change their usual way of working
- Whether they had the Knowledge and the Ability to implement the change
- The factors that helped or hindered them to achieve and Reinforce the change: devices, connectivity, materials, skills, support, other

4. How teachers report being affected

- How they used to work
- Their Awareness of the need for change
- Their Desire to participate in and support the change
- How they had to change their usual way of working
- Whether they had the Knowledge and the Ability to implement the change
- The factors that helped or hindered them to achieve and Reinforce the change: devices, connectivity, materials, skills, support, other

5. How administrators report being affected

- How they used to work
- Their Awareness of the need for change
- Their Desire to participate in and support the change
- How they had to change their usual way of working
- Whether they had the Knowledge and the Ability to implement the change
- The factors that helped or hindered them to achieve and Reinforce the change: devices, connectivity, materials, skills, support, other

6. How well the program adapted overall and what happened subsequently as time went on (NOTE: one of the main issues that will help us group the case studies)

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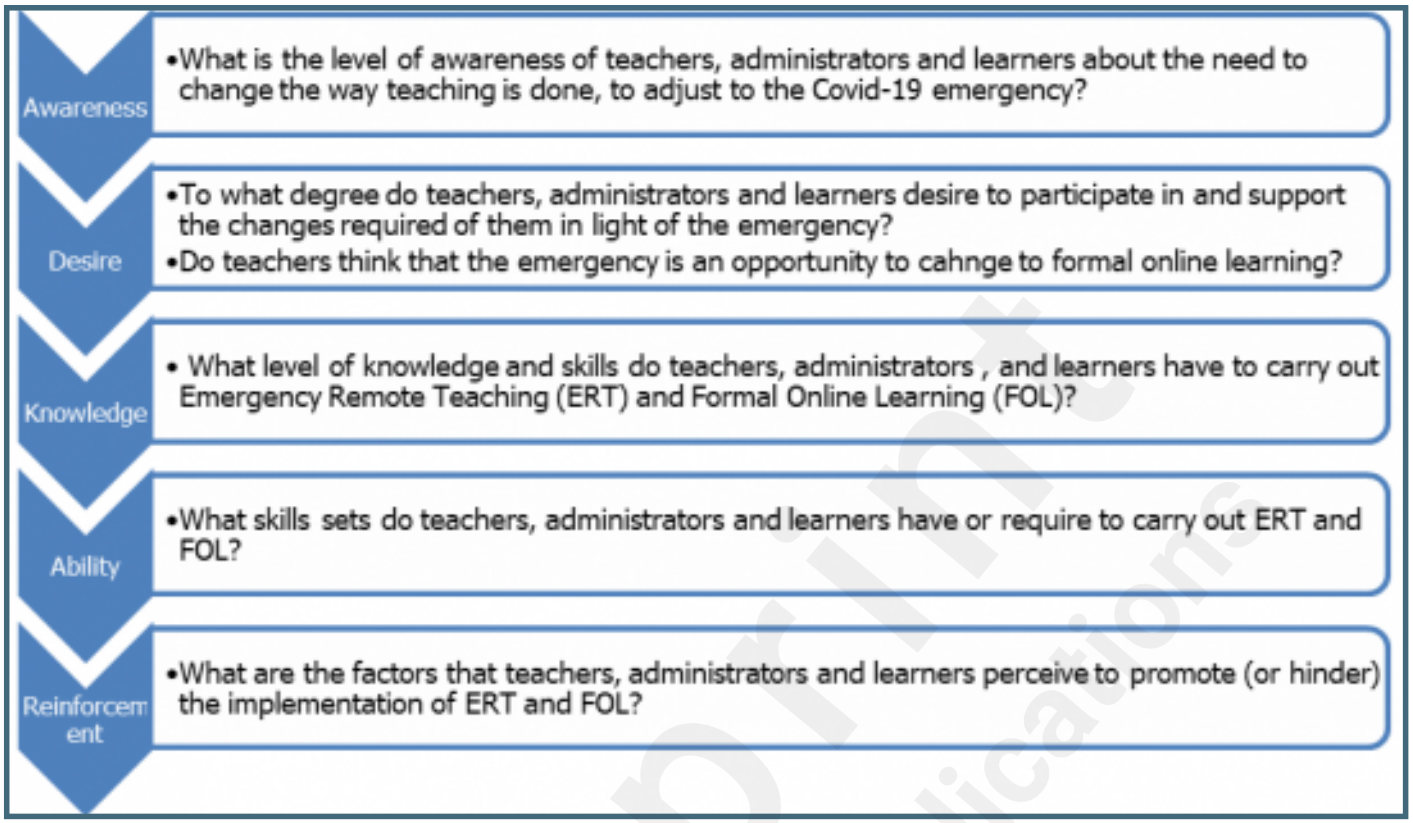
The conceptual framework based on the ADKAR model [11].



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The case study framework.
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