

ACADEMIC PHARMACY SECTION SPECIAL ISSUE

PROGRAMME DESCRIPTION

Impact of collaborative health education and leadership programme on pharmacy education in Zimbabwe

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Abstract

To ameliorate the impact of brain drain on quality of education at the University of Zimbabwe, the Health Education Advanced Leadership in Zimbabwe (HEALZ) programme was implemented in 2012. The authors present a retrospective narrative review of the pharmacy educators' activities under the programme, and the impact on pharmacy education. Five pharmacy educators were enrolled into the one-year programme between 2016 and 2020. The programme consisted of three intensive one-week face-to-face sessions focused on health professions education. In between the sessions, the educators conducted needs' assessments to establish gaps in pharmacy training and developed curricula in the areas of herbal medicine, snakebites, drug-herb interactions, oncology, and health economics. Thereafter, they delivered seven conference abstracts and nine continuing professional development training sessions. The pharmacy educators are now working on transferring the HEALZ programme to the two new pharmacy training institutions, to strengthen the pharmacy education workforce across the country.

Introduction

The sub-Saharan workforce in all areas of pharmacy practice, including academia, is adversely affected by the migration of pharmacists to other countries in an attempt to find better practice conditions. This is partly because of poor remuneration, non-supportive workplace environments, and high workloads due to insufficient academic numbers (Hooper, 2008; International Pharmaceutical Federation, 2020; Zindi, F, 2008). Between 2009 and 2010, an economic crisis exacerbated the brain drain in Zimbabwe, leading to approximately 61% of faculty positions in the University of Zimbabwe (UZ) Faculty of Medicine and Health Sciences (FMHS) being left vacant (Aagaard *et al.*, 2018; Matsika *et al.*, 2018). During this period, the Department of Pharmacy and Pharmaceutical Sciences (DPPS) was not spared. In an attempt to ameliorate the impact of brain drain on the quality of education, the Novel Education Clinical Trainees and Researchers

(NECTAR), funded by the National Institutes of Health Fogarty International Centre's Medical Education Partner Initiative (MEPI) embarked on the development of competency-based curricula which required revision of existing curricula (Ndhlovu *et al.*, 2014).

A needs assessment carried out around the same time indicated the faculty also required leadership development. As a result of the above, the Health Education Advanced Leadership in Zimbabwe (HEALZ) programme was developed for all faculty at the Faculty of Medicine and Health Sciences, University of Zimbabwe and implemented in 2012. HEALZ is a one-year programme with intensive face-to-face sessions coupled with mentored research projects (needs assessments) and competency-based curriculum development. The primary goal was to intensify the educational capacity of UZ-FMHS by developing skills in curriculum development, programme evaluation, and educational leadership for faculty interested in

advancing medical education (Aagaard *et al.*, 2018). The authors describe a case series of leadership development for pharmacy educators and how this advanced pharmacy education at the University of Zimbabwe.

Programme description

The HEALZ programme is a faculty-wide one-year programme consisting of three intensive one-week face-to-face sessions focused on health professions education. Applications for enrollment into the programme must include a concept note for a needs assessment. The needs assessments were guided by steps recommended by Management Sciences for Health training (Management Sciences for Health, 2012). Applicants choose any focus area based on personal interest or experience. No focus areas were provided to choose from in the programme. During the sessions, learners are introduced to several health education topics, which include educational needs assessments, qualitative research methods, education pedagogy and andragogy, change management, educational leadership, curriculum development and evaluation (Thomas *et al.*, 2016). Teaching strategies combine experiential learning and peer-mentorship. Between the weekly sessions, scholars are expected to develop and perform their needs assessment under the guidance of their mentors, followed by the development of a curriculum in their area of interest. Additionally, HEALZ scholars are required to develop abstracts and posters for presentation at the UZ Health Professions annual conference. Scholars are also free to make further presentations at other conferences and publish aspects of the module development or implementation process (Aagaard *et al.*, 2018; Matsika *et al.*, 2018).

The first cohort, which was enrolled in 2013, consisted of chairpersons of the different departments, including the Department of Pharmacy and Pharmaceutical Sciences (DPPS), who were headhunted to foster buy-in from the faculty of the UZ-FMHS. HEALZ was subsequently opened to educators from any health-related discipline. Between 2016 and 2020, five pharmacy educators from the DPPS enrolled on the HEALZ programme. The pharmacy educators chose to focus on herbal medicine, clinical toxicology, traditional medicine, oncology pharmacy, and health economics. A brief description of these focus areas is presented below.

Herbal medicine

An initial needs assessment was conducted to assess the learning environment. This included interviews with senior academics in the medical and pharmacy departments, reviews of existing medical and pharmacy curricula, and a mixed-methods survey, incorporating both open-ended and closed questions, among pharmacists and doctors on knowledge and attitudes towards herbal medicine. The needs assessment highlighted that a few clinical aspects of herbal medicine were taught in the pharmacy curriculum and none in the medical curriculum. In addition, doctors and pharmacists in Zimbabwe did not feel competent to guide the use of herbal medicines. A continuing professional development module targeted at doctors and pharmacists was developed. The goal of the module is for participants to acquire the knowledge and develop the attitudes and skills required to effectively elicit information regarding the use of herbal medicines from patients and provide patient-centred options to promote their safe use.

Clinical toxicology

A needs assessment which included document reviews on existing curricula, informal discussions with other clinicians (mentors and students in the HEALZ 2016 cohort) and a researcher-based questionnaire administered to emergency department nurses and doctors on issues relating to snakebites, was conducted. Results from the document reviews demonstrated that there was an absence of a systematic module focused on snakebites. Moreover, the informal discussions with qualified clinicians coupled with the researcher-based questionnaires demonstrated that most clinical staff were not comfortable when it came to issues related to snakebites and their management. As a result of this, a module was developed which aims to educate healthcare professionals on pertinent issues relating to snakebites in Zimbabwe and their management. This module was to be integrated into the pharmacy clinical toxicology curriculum as well as offered to other healthcare professionals as a separate stand-alone module (Tagwireyi D, 2021).

Traditional medicines

A focused needs assessment showed that third and final-year students from UZ and practising pharmacists in Harare Central Business District (CBD) had positive attitudes toward traditional medicines. They agreed that traditional medicines should be included in the pharmacy practice curriculum. However, most of them lacked knowledge and counselling skills on traditional medicines in pharmacy practice. The goal of the curriculum is for them to acquire knowledge and

develop the skills necessary to effectively counsel patients who use traditional medicines.

Oncology pharmacy

A needs assessment which included a review of the undergraduate curriculum coupled with a survey of community pharmacists, was conducted. The curriculum indicated that aspects of oncology pharmacy were taught at the undergraduate level; however, the fidelity of curriculum implementation could not be established. Subsequently, the survey was designed to establish prior teaching received in oncology and assess whether it was adequate for practice. Further, the study determined knowledge, perceptions and current practices surrounding oncology pharmacy. Overall, pharmacists indicated that although aspects of oncology pharmacy had been taught during undergraduate training, it was inadequate for the provision of quality oncology pharmacy services. Further knowledge scores were poor, and the pharmacist indicated that additional training in oncology pharmacy was necessary (Manyau *et al.*, 2021). As a result, a curriculum was designed to provide basic level certification for pharmacists providing oncology services.

Health economics

A targeted needs assessment which included a review of the University of Zimbabwe's pharmacy training curriculum and surveys among practising pharmacists, was conducted. The curriculum review revealed the provision of cost-effective medicines and decision-making as some of the key roles of a pharmacist. To effectively function in these roles, one would require skills in health economics. A survey among practising pharmacists revealed a lack of skills in health economics. The survey participants recommended health economics be taught at the undergraduate level.

To achieve consistent teaching, we developed a health economics curriculum for undergraduate pharmacy students.

Evaluation

The impact of the pharmacy educators' participation in the HEALZ programme was evaluated based on the International Pharmaceutical Federation's measures of the impact of pharmacy education on society. These include, among others, positions of leadership achieved, the leadership of academic staff in the profession, educational and scientific communities nationally, regionally, and internationally, innovations and advances in pharmacy practice brought about by collaborative efforts, as well as advances in scientific, medical, and pharmaceutical knowledge and technology (International Pharmaceutical Federation – FIP, 2014).

Impact on pharmacy education, interprofessional education and collaborative practice

A total of five new curricula were developed by the scholars. Two have been fully implemented, one has been piloted, and the remaining two are still in the planning stages (Table I). Delays in the implementation of some of the curricula have been caused by COVID-19, which significantly interrupted teaching and learning in Zimbabwe (Mbunge *et al.*, 2020). Challenges were encountered concerning the implementation of the oncology pharmacy curriculum. These include a lack of consensus on whether the curriculum should be accredited and the identification of resources such as biosafety cabinets and clean rooms.

Table I: Five curricula were developed and implemented between 2016 and 2020

Year of programme completion	Module/ Course developed	Implementation progress
2016	A herbal medicine continuing professional development (CPD) module for doctors and pharmacists in Zimbabwe	Five CPD training meetings between 2016 and 2018.
2017	Snakebites for healthcare professionals (online)	1. Fully implemented. Available online 2. Module also available as audio Powerpoint presentations on a YouTube channel for BPharm (Hons) students to access.
2019	Post-graduate certificate in oncology pharmacy	Stakeholder engagement and resource identification ongoing
2020	Drug-herb interactions module in pharmacy practice	The pilot roll-out was performed with 3 rd and 4 th year pharmacy students
2020	Health economics curriculum for undergraduate pharmacy students	Planning implementation

Mutually beneficial pharmacy education partnerships between schools of pharmacy and other organisations may provide a wide range of opportunities to achieve improved learning and development for the pharmaceutical workforce (International Pharmaceutical Federation, 2020; Uzman *et al.*, 2020). The HEALZ programme was initially implemented in collaboration with the University of Colorado; hence earlier scholars had the opportunity to interact and be mentored to deliver HEALZ by three colleagues from a different organisation.

In addition, UZ-FMHS has a Partnership in Education Training and Research Advancement (PETRA) grant from the National Institutes of Health (NIH) to capacity-build faculty in interprofessional education and collaboration (PETRA, 2021). Academic staff from DPPS have attended the workshops and facilitated some of them. This has strengthened the capacity building obtained from HEALZ. Learning in interprofessional teams is increasingly recognised as ideal and important for a more effective, efficient, and integrated healthcare service (Lucas *et al.*, 2020). Pharmacy educators who took part in the HEALZ programme had the opportunity to interact with colleagues from internal medicine, pharmacology, public health, dentistry, anaesthesia, oncology, occupational health, psychiatry and gynaecology. Small group learning led to the cross-pollination of ideas and new perspectives on curricula under development and existing ones under continual review. Furthermore, over the year, lasting relationships were built, and these have been leveraged for multi-disciplinary teaching.

Impact on scholarship

The programme increased the scholarly output of the department. A total of seven conference abstracts and presentations were delivered by the faculty. These included local, regional, and international education and practice conferences, as detailed in Table II. This, in addition, increased engagement of faculty with local, regional, and international colleagues. One of the presentations was developed into a manuscript. Value could still be realised from sharing the curriculum development process if pursued.

Impact on leadership and career development

Peer mentorship assists junior faculty in navigating the academic sphere. There are competing priorities, such as strong research programmes, teaching more courses, and adopting novel pedagogies and technologies (Waddell *et al.*, 2017). For the scholars, HEALZ added a layer to the complexity because it required faculty to take on more responsibility as part of their career development. HEALZ scholars were required to identify mentors from their institution who would assist them in navigating these

challenges. The informal mentorship helped to ease pressure during training. Additionally, the peer-mentored relationships with senior faculty have persisted beyond the completion of the programme. Post-HEALZ, mentorship has extended to supporting pharmacy educators on their career paths and collaborative research projects.

With regard to leadership development, HEALZ had a focus on transformational leadership. The programme instilled soft skills which are consistent with qualitative experience. Pharmacy educators who completed the course reported more self-awareness, better insight into group dynamics and a more reflective approach to work in general (Tekleab *et al.*, 2008; Traynor *et al.*, 2019). This was complemented by topics such as programme planning and change management. As a result, participants report a shift in their approach to leadership activities as they implement or plan to implement their curricula.

As a result of participation in HEALZ, there were other specific leadership achievements by some of the scholars. Three of the scholars were recognised as leaders in their areas of Health Professions Education (HPE) interest and invited to mentor scholars expressing interest in the same areas in subsequent HEALZ cohorts. One of the scholars is currently facilitating faculty-wide interprofessional education (IPE) module development and training of trainer initiatives at UZ. Lastly, one of the pharmacy educators profiled in this paper, in collaboration with another scholar from biomedical sciences, received a grant for the development of a curriculum for mentoring women in science, technology, engineering, mathematics and medicine (STEMM).

Discussion and lessons learnt

The availability of sufficient and quality academic capacity is important for the delivery of quality education and training. Major challenges for pharmacy education in the sub-Saharan Africa (SSA) region are related to the shortfall of academic capacity with highly qualified faculty members for effective teaching, among other factors (International Pharmaceutical Federation, 2020). The HEALZ programme equipped the scholars with skills in teaching strategies, mentoring, curricula development and leadership. This resulted in improved and consistent teaching of pharmacy students. The HEALZ programme developed academic capacity by impacting the scholars' skills in the scholarship of education, interprofessional education and collaborative practice, as well as educational leadership and career development. Furthermore, the needs assessments which were performed as part of curriculum development fostered scientific enquiry.

Table II: Scholarly output from the HEALZ programme

Conference presentations
Tsitsi G Monera-Penduka. "The Pharmacist we want: A Clinical Pharmacy Practitioner competent in herbal medicine stewardship." The Pharmaceutical Society of Zimbabwe Annual Pharmacists Indaba, 5 – 8 October 2017, Elephant Hills Resort, Victoria Falls, Zimbabwe.
Tsitsi G Monera-Penduka. "Pharmacist-led phyto-pharmacovigilance". Independent Community Pharmacists Association of South Africa Annual Indaba. 8 – 10 September 2017. Emperors Palace, Johannesburg, South Africa
Tsitsi G Monera-Penduka, Alice Matimba , Charles FB Nhachi, Kennon Heard, Charles C Maponga. "A herbal medicine continuing professional development module for doctors and pharmacists in Zimbabwe." Health Professions Education Conference, 23 June 2016, University of Zimbabwe College of Health Sciences, Harare, Zimbabwe.
Tsitsi G Monera-Penduka. "Characterizing herbal medicines for improvement of public health." International Pharmacy Students Federation World Congress 2016, 29th July to 08 August 2016, University of Zimbabwe, Harare, Zimbabwe.
Celia MJ. Matyanga. "Advancing Integrative Health Service: Complementary and Traditional Medicine." Pharmacists Council of Zimbabwe Second National Conference 2021, Elephant Hills Resort, Victoria Falls, Zimbabwe.
Maudy CP Manyau. "Oncology Pharmacy: An educational targeted needs assessment among community pharmacists in Harare." International Society of Oncology Pharmacy Practitioners (ISOPP) Africa Regional Oncology Pharmacy Symposium. Nairobi. May 2019
Blessing Dzingirai. "Health Technology Assessment a situation analysis of Zimbabwe." Oral presentation. HTAi 2022 Meeting, Utrecht , The Netherlands. Accepted paper.
Continuing Professional Development (CPD) training sessions
Tsitsi G Monera-Penduka. "Herbal medicine and HIV - the clinician's role." HIV Clinicians Society meeting. 22 November 2018. ZiMA House, Harare, Zimbabwe
Tsitsi G Monera-Penduka. "A phyto-pharmacovigilance model for Community Pharmacists in Zimbabwe." The Pharmaceutical Society of Zimbabwe Matabeleland/Midlands Branch Continuing Education meeting, 16 February 2017, ZiMA House, Bulawayo, Zimbabwe.
Tsitsi G Monera-Penduka. "Potential impact of phytotherapy on pharmacotherapy." The Pharmaceutical Society of Zimbabwe Matabeleland/Midlands Branch Continuing Education Meeting, 21 September 2016, Bata Club, Bulawayo, Zimbabwe.
Tsitsi G Monera-Penduka. "Clinicians and Herbal Medicines - Changing practices with changing times." CPCPZ/PSZ Joint Congress, 26 - 29 May 2016, Troutbeck, Nyanga, Zimbabwe.
Celia MJ. Matyanga. "African Traditional Medicines: Focus on African Potato." DaTIS Continuous Professional Development Workshop for Pharmacists, UZ Faculty of Medicine and Health Sciences. 14 July 2018.
Celia MJ. Matyanga, Dexter Tagwireyi, Charles FB. Nhachi. "A targeted Needs assessment for the Development of a curriculum for Traditional Herbal Medicines in Pharmacy Practice." Annual Medical Research Day, Rainbow Towers, Harare. 7 Nov 2020.
Celia MJ. Matyanga. "Complementary and Alternative Medicines module, Traditional Medicines Course." June 2021. Collaboration with the University of Zimbabwe and University at Buffalo, the Centre of Excellence for Pharmaceutical Innovation, the Traditional Medical Practitioners Council, and the Natural Therapists Council Zimbabwe.
Blessing Dzingirai. : Health Technology Assessment: Do we need it?" Datis Pharmacist Continuing Education meeting, 11 May 2019, UZ Faculty of Medicine and Health Sciences
Maudy CP Manyau. "Oncology pharmacy practice standards overview." Drug and Toxicology Information Service Continuing Education meeting, 8 June 2019, UZ Faculty of Medicine and Health Sciences

Possessing the requisite qualifications and/or expertise may not be sufficient to produce an effective pharmacy educator with leadership qualities (Ruben *et al.*, 2018). A programmatic approach to developing pharmacy educators, such as that offered by HEALZ, pushes faculty to reassess their approaches to teaching. It also stimulates innovation through the creation of new spaces in education and practice which are aligned with one's interests and passions. HEALZ demonstrates that leaders and pioneers are not necessarily "born"; however, they can be developed.

Future plans

The HEALZ programme promoted scholarship in pharmacy education. Medium-term impacts of HEALZ include advancing pharmacy education through the development of CPD programmes and promotion of specialisation through post-graduate certificate programmes. The HEALZ programme will be useful in strengthening other pharmacy training institutions. The pharmacy educators at the University of Zimbabwe are developing a new grant application that will support the transfer of the HEALZ programme to the two new pharmacy training institutions, to strengthen the pharmacy education workforce across the country.

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