Research

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Nurturing excellence: Evaluating a health professions university leadership training programme in Zambia

P Katowa-Mukwato,[1] PhD; **MH Martin,**[2] PhD, MEd; **ES Rose,**[2] EdD, MPH; **SH Nzala,**[3] MB ChB, MPH; **M Banda Chalwe,**[3] PhD, MSc; **S Munsaka,**[4] PhD, MSc; **A Bwalya,**[4] PhD, MSc; **M Kabinga-Makukula,**[1] PhD, MSc; **V Kayamba,**[3] MB ChB, PhD; **C Kwaleyela,**[5] PhD; **L Mukololo,**[3] PhD, MSc; **R Wahila,**[1] PhD; **V Umutoni,**[2] MPH; **L Chavez,**[2] MPH; **L Ammar,**[2] MPH; **A Mahajan,**[2] BS; **FM Goma,**[3] MB ChB, PhD

[1] *School of Nursing Sciences, University of Zambia, Lusaka, Zambia*
[2] *Institute for Global Health, Vanderbilt University Medical Center, Nashville, United States of America*
[3] *School of Medicine, University of Zambia, Lusaka, Zambia*
[4] *School of Health Sciences, University of Zambia, Lusaka, Zambia*
[5] *School of Nursing and Midwifery, Mulungushi University, Kabwe, Zambia*

Corresponding author: *ES Rose (elizabeth.rose@vumc.org)*

Background. Effective leadership is essential for the performance of healthcare systems, and university faculty play a key role in educating healthcare professionals. However, in many countries, including Zambia, health professions training does not include substantial leadership training. To address this need, faculty at Zambian universities designed and launched a leadership training programme to equip health professions faculty with the knowledge and skills necessary to impart leadership competencies to their students.

Objective. To evaluate programme efficacy by assessing changes in trainees' leadership knowledge and behaviours. The results of this evaluation will help inform these and other universities about the utility of an in-house leadership programme.

Methods. Using a mixed-methods study design framed by the Kirkpatrick model for programme evaluation, we administered a survey to trainees (n=35) before and immediately after the programme. The survey included 5-point scales on which participants self-rated their knowledge and skills in leadership competencies. One month after the programme, semi-structured focus groups were conducted to gather trainees' perceptions of the programme. Descriptive statistics were calculated for quantitative data and categorised qualitative data according to salient, recurring themes.

Results. Analyses of qualitative and quantitative data from the 35 faculty trainees revealed that they enjoyed the programme and experienced growth in all leadership competencies taught, although they felt that more time could have been allocated to workshops. Trainees' leadership knowledge increased by an average of 48% across all nine domains taught, with the greatest growth in 'social and emotional intelligence' (73%) and 'diversity, inclusion and equity' (58%). Trainees also reported substantial growth (42%) in their confidence of their leadership behaviours. Other areas of significant growth included 'using tools and strategies to address microaggressions' (88%) and 'exploring types of microaggressions faced by diverse groups' (84%).

Conclusion. These results indicate that a short, intentional and locally relevant training programme can address gaps in leadership training and effectively equip faculty with leadership knowledge and skills. Unique elements of this programme include its development by an interdisciplinary team of university faculty who also taught the workshops, the use of a 'train-the-trainer' model to promote programme sustainability, and collaboration among three academic institutions in the development and assessment of the course. This programme could serve as a model for academic institutions interested in developing leadership courses for faculty.

Keywords. Academic leadership, academic management, faculty development, capacity building, low- and middle-income countries, Zambia, healthcare leadership, health professions education

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The World Health Organization (WHO) recognises leadership and governance as one of the six key building blocks of an effective healthcare system.[1] Leadership practices can contribute to better healthcare delivery outcomes,[2] and effective leadership and management can greatly improve health service delivery.[3] However, in many low- and middle-income countries (LMICs), including Zambia, university faculty and health system leaders are often promoted on the basis of their educational or clinical expertise and moved into leadership roles without substantial leadership training.[4-6] In Zambia, district health teams are often led by newly qualified medical doctors whose preservice training emphasised clinical skills rather than management and leadership skills.[4] In addition, universities in LMIC settings have not historically offered training in effective leadership practices, either as part of the formal curriculum or through faculty development programmes.[7]

Academic institutions and health professions boards in LMICs have recommended incorporating leadership training as an essential component of the education of healthcare professionals.[8] Providing opportunities for professional development in leadership and management to current health sciences faculty not only strengthens their ability to impart this knowledge to students but also enhances their own skills. To promote effective leadership and management practices among healthcare professionals in Zambia,

faculty leaders within schools of health professions at local universities developed the Leadership and Management Training Programme. This programme was designed to increase leadership and management knowledge and skills among faculty who teach future healthcare professionals and leaders. In an age of increasingly complex health systems, comprehensive leadership and management knowledge and skills are necessary for all individuals. Healthcare organisations and medical schools, like other human institutions, need competent and effective leaders to address the threats and challenges of the modern world.[8-10] Identifying potential leaders and providing them with training, support and encouragement to assume leadership roles can help ensure a cadre of trained leaders.[11]

This training programme aimed to strengthen faculty's leadership and management knowledge and skills through the exploration and practical application of prominent leadership theories and strategies. Using the first three levels of the Kirkpatrick model as an evaluation framework, we assessed the efficacy of this programme in increasing participants' leadership and management knowledge and building their skills.

Methods

Theoretical framework

The Kirkpatrick model is a four-level model commonly used to evaluate the efficacy of training programmes.[12] The first three levels of the model assess participants' reactions, learning gains and behaviour changes that can be attributed to the training. Reactions convey participants' initial feelings of and the acceptability of the training. Learning gains reflect growth in knowledge that can be correlated with the training. Behaviour changes demonstrate the extent to which participants intend to, or do, apply and transfer what they learned in training to their actions. The fourth level assesses the long-term effects of the programme. Owing to the short-term nature of this evaluation, we evaluated only the first three levels.

Programme design

The curriculum was developed based on competencies of effective leadership in academic healthcare identified in the literature, including critical thinking, communication skills, time and task management, emotional intelligence and teamwork, among others.[11,13-15] Through nine modules, ten programme facilitators taught these key leadership and management knowledge and skill areas using active learning strategies designed to help trainees become more effective leaders in education, research and healthcare. Trainees explored important theories and strategies in leadership and management to develop core skills and knowledge. The nine-module curriculum was taught over three day-long workshops covering broad elements of leadership and management, including an introduction to leadership, change management, conflict management, critical thinking, diversity and inclusion, effective communication, self-management, social and emotional intelligence, and team building (Table 1). Throughout the workshops, trainees engaged in small- and large-group discussions, tackled complex situations through case studies and drafted individual leadership philosophies.

We piloted this programme with 40 academic members from the Schools of Health Sciences, Medicine, Nursing Sciences and Public Health at two universities in Zambia. This group comprised academic healthcare professionals who were viewed by university leadership as future leaders within their respective schools and the healthcare system.

Data collection tools

We used a mixed-methods approach for this evaluation, which included two surveys and two focus groups designed using the Kirkpatrick model for programme evaluation. All trainees were invited to participate in the surveys and focus groups, and the confidentiality of responses was ensured. This study was reviewed and approved by the Bioethics Review Committee at the University of Zambia.

Table 1. Module topics and learning objectives

Topic	Learning objectives
Introduction to leadership and management	• Discuss prominent theories in leadership and management. • Identify one's personal leadership style and blind spots.
Change management	• Apply change management frameworks, as well as creativity and innovation, to effectively utilise communication, empowerment and team-building strategies for successful changes within a workplace.
Conflict management	• Apply attributes of social intelligence to problem-solving. • Select the appropriate conflict management approach for specific situations.
Critical thinking and problem-solving	• Identify one's critical thinking disposition and essential traits of critical thinking. • Learn strategies to promote critical thinking in teaching. • Apply critical thinking and problem-solving strategies to difficult professional situations.
Diversity, inclusion and equity	• Develop self-awareness of one's unconscious biases and microaggressions. • Explore types of microaggressions faced by diverse groups at the university. • Use tools and strategies to address microaggressions. • Discuss issues of equity.
Effective communication	• Identify attributes of one's communication style as well as effective communication techniques. • Select and use appropriate communication methods for different audiences.
Self-management and self-development	• Strengthen the ability to govern one's emotions, attitudes and habitual reactions, as well as to effectively manage time. • Examine the effect one's actions have on others.
Social and emotional intelligence	• Recognise the importance of self-awareness (i.e., emotional intelligence), social awareness and empathy. • Identify one's levels of social and emotional intelligence and how to effectively grow work relationships and lead based on these characteristics.
Building success through teamwork and team culture	• Describe the importance of teamwork and building a strong team culture • Develop strategies to work co-operatively and collaboratively with others to achieve collective goals

Surveys were administered to trainees at the start and end of the workshop series. These surveys collected quantitative information on participants' leadership and management knowledge and skills to evaluate potential changes in these areas (Kirkpatrick's second level: learning gains). One month after the workshops, all trainees and facilitators were invited to participate in an hour-long focus group. We held one focus group for trainees (10 opted to participate) and one for facilitators (all 10 facilitators opted to participate). We used a semi-structured question guide to generate group discussion around the programme's design, changes in individuals' knowledge and behaviours, and the perceived effects of the programme at the university. Through these focus groups, we sought to gather examples of how participants may might have modified their leadership and management behaviours following the workshop (Kirkpatrick's third level: behaviour change), as well as their reactions to the programme (Kirkpatrick's first level: participant reactions) and suggestions for quality improvements.

To help evaluate potential influences on trainees' leadership experience, the pre-programme survey included quantitative questions to collect demographic data, such as gender, number of years in leadership positions and number of years affiliated with a university. In both the pre- and post-programme surveys, trainees were asked to rate their leadership and management knowledge using a 5-point Likert scale, as well as their confidence in exhibiting leadership and management behaviours. The knowledge questions were based on the content presented in the nine programme modules to assess whether participants' knowledge had improved. The behaviour questions were based on the modules' learning objectives and were intended to measure whether trainees demonstrated the behaviours outlined in those objectives. These knowledge and behaviour questions were identical in the pre- and post-workshop surveys to allow assessment of changes in trainees' responses. A positive change from pre- to post-workshop indicated growth in knowledge or skills, whereas a negative change indicated the opposite. These changes could be correlated with the workshop training, and we used them to measure Kirkpatrick levels≈2 and 3: learning gains and behaviour change.

The post-programme survey also included quantitative and qualitative questions to collect trainees' reactions to the workshop and suggestions for improvements. Reponses to these questions helped us measure Kirkpatrick level 1: participant reactions.

A 5-point Likert-type scale was used for responses, with 1 corresponding to 'strongly disagree' or 'very low' and 5 to 'strongly agree' or 'very high'. Both the pre- and post-workshop surveys were administered using REDCap (Research Electronic Data Capture, Vanderbilt University), a secure online platform for building and managing databases.[16,17]

Data analysis

To analyse quantitative data related to knowledge and behaviour, we calculated the percentage change from pre- to post-workshop by first determining the mean trainee rating for each knowledge and behaviour question in the pre- and post-programme surveys. We then subtracted the pre-programme mean from the corresponding post-programme mean, divided the result by the pre-programme mean and multiplied it by 100 to obtain the percentage change. In other words:

$$\text{percentage change} = \frac{((post - programme\ mean) - (pre - programme\ mean))}{(pre - programme\ mean)} \times 100$$

To analyse qualitative responses, we used an inductive, semantic approach to thematic analysis. Two authors with prior training and experience in qualitative analysis independently reviewed responses to identify and code salient phrases. Afterward, they discussed their coding and reached agreement on any discrepancies. Thereafter, they developed thematic categories that broadly reflected responses. We used Excel (Microsoft, USA) to organise and colour-code the qualitative data and to conduct all quantitative analyses.

Results

Demographic data from 35 trainees were collected in the pre-programme survey. Slightly fewer than half of the trainees were female (46%), and half (50%) had been affiliated with their university for one to five years. Most held formal leadership roles (72%) and all had held leadership positions for one to five years. The focus-group participants comprised a convenience sample of trainees and facilitators and had demographics similar to those of the larger group.

Level 1: Participant reactions

Participants' reactions to the programme were collected through the post-workshop survey and focus groups. Analysis of the quantitative data revealed that trainees enjoyed the workshops but felt that more time could have been allocated to them. All trainees (100%) 'strongly agreed' or 'agreed' that the programme had met their expectations, that they would recommend the programme to colleagues and that information had been clearly presented. In addition, 97% of trainees 'strongly agreed' or 'agreed' that the Leadership Toolbelt activity would be useful to them in the future and that the activities were a good use of workshop time. Most trainees (88%) felt similarly about creating their leadership philosophy, although fewer (69%) felt that sufficient time had been allocated to each workshop. The qualitative findings supported these results.

Level 2: Knowledge change

Prior to the programme, trainees' lowest-rated areas of knowledge were 'leadership theories' and 'social and emotional intelligence' (for both, mean 2.4 on a 5-point scale, where 1 = very low and 5 = very high) (Table 2). After the programme, knowledge ratings were highest for 'diversity, inclusion and equity' (mean 4.4), 'teamwork and team culture' (mean 4.3) and 'effective communication' (mean 4.3). The areas of greatest percentage growth (i.e., knowledge acquisition) were 'social and emotional intelligence' (73%) and 'diversity, inclusion and equity' (58%).

In focus groups conducted one month after the workshops, trainees described increased self-awareness of their leadership capacity. This was reflected in comments such as 'More capable of leadership than I previously thought' and 'Realised gaps and how to improve'. Facilitators also discussed their growth in leadership knowledge and their deeper understanding of the field and its content, as demonstrated by comments such as 'Developing the curriculum made me realise just how much information there is on leadership and management' and 'I learned the importance of listening to divergent views.'

Level 3: Behaviour change

Prior to the programme, trainees' lowest-rated areas of confidence in demonstrating the workshop learning objectives were 'using tools and strategies to address microaggressions' (mean 2.1 on a 5-point scale, where

Table 2. Trainees' self-reported leadership knowledge before and after the programme*

Knowledge category (module topics)	Pre-programme: mean (SD)	Post-programme: mean (SD)	Percentage growth
Social and emotional intelligence	2.4 (0.9)	4.2 (0.6)	73%
Diversity, inclusion and equity	2.8 (0.8)	4.4 (0.6)	58%
Leadership theories	2.4 (0.8)	3.7 (0.6)	56%
Effective management practices	2.6 (0.8)	4.1 (0.6)	56%
Conflict management	2.6 (0.9)	4.1 (0.6)	55%
Change management	2.6 (0.9)	3.9 (0.7)	51%
Self-management and self-development strategies	2.8 (0.8)	4.2 (0.7)	49%
Teamwork and team culture	3.2 (0.8)	4.3 (0.6)	36%
Critical thinking and problem-solving	3.1 (0.9)	4.1 (0.7)	33%
Effective communication	3.3 (0.9)	4.3 (0.8)	28%
Overall	**2.8 (0.9)**	**4.1 (0.7)**	**48%**

SD = standard deviation.
*As scored on a 5-point scale, where 1 = very low and 5 = very high.

1 = very low and 5 = very high) and 'exploring types of microaggressions faced by diverse groups' (mean 2.2) (Table 3). After the programme, the area of highest confidence was 'recognising the importance of self-awareness' (mean 4.5). The areas of greatest percentage growth in confidence in leadership behaviours were 'using tools and strategies to address microaggressions' (88%) and 'exploring types of microaggressions faced by diverse groups' (84%). As each of these learning objectives was associated with behaviour change (e.g., using tools, applying self-awareness and implementing strategies), we believe that these findings reflect an intended behaviour change and the transfer of knowledge into action.

In open-response survey questions, trainees indicated an intention to apply what they had learned in the programme, as illustrated by one trainee:

> 'I will be using these skills on a daily basis among my co-workers and students to effectively manage the day-to-day affairs of my institution.'

Ways of applying skills and knowledge varied, but two common themes emerged: enhancing teamwork and team culture, and developing departmental strategic plans and personal leadership philosophies. Trainees also described plans to incorporate themes from this programme into other workshops that they teach and to share information and materials from the programme with their colleagues. One trainee explained:

> 'This training will have great positive impact as it will change our understanding and approach both as leaders and managers. We will be more open-minded, accommodating and inclusive in the teams that we work with.'

In addition, facilitators noted behavioural changes arising from developing and leading the workshops. Developing the modules made them realise the importance and value of leadership and management training, and they subsequently applied what they had learned in their daily activities.

Discussion

Most participants (72%) in this programme were currently in leadership positions that they had held for one to five years. Compared with the pre-programme survey, trainees rated their leadership and management knowledge and skills almost 50% higher in the post-programme survey, indicating that the training helped them develop leadership knowledge and skills. The low baseline leadership knowledge ratings emphasise the need to ensure that all faculty receive leadership and management training to prepare them for future leadership positions.

Moreover, using the Kirkpatrick model for programme evaluation, we found substantial improvements across the three levels measured. For level one (participant reactions), all participants (100%) indicated that they would recommend the programme to a colleague. For level two (learning gains), we found substantial knowledge gains across all topics, with the greatest gains occurring in social and emotional intelligence. Growth in this area is important because the leadership attributes of social and emotional intelligence have been lauded as significant underlying principles of successful healthcare leadership.[15,18] Significant gains were also observed in the areas of 'diversity, equity and inclusion' and 'leadership theories'. For level three (behaviour change), there was substantial growth in intended behaviour change (Table 3), particularly in the areas of addressing microaggressions, applying social and emotional intelligence to problem-solving, and managing conflict. These findings suggest that trainees intended to apply their new knowledge to modify their behaviours.

Three of the four highest areas of growth were related to diversity, equity and inclusion, specifically topics concerning microaggressions (Table 3). Diversity has not traditionally been considered a prominent issue in this local setting, as it has largely been viewed through the lens of race, which is less salient in Zambia. Trainees' perspectives were challenged as they learned that diversity extends beyond race and gender. During the workshop, they discussed other aspects of diversity, such as physical disability and socioeconomic status. With greater awareness of the rich diversity around them, trainees noted important implications for leaders, particularly the need to recognise and address microaggressions against minority groups and to foster more inclusive environments.

Although leadership is a vast topic, when delivered in an intentional and focused manner, as in this programme, leadership training can be effective in addressing gaps in the training, knowledge and skills of current and future leaders.

Limitations

As we intended to measure the immediate effects of the programme, data were collected within one month of its conclusion; therefore, long-term effects of the programme remain unknown. The evaluation tools relied on self-reported perceptions of knowledge and behaviours, potentially

Table 3. Trainees' self-reported confidence in demonstrating leadership behaviours before and after the programme*

Behaviour category (workshop learning objectives)	Pre-programme: mean (SD)	Post-programme: mean (SD)	Percentage growth
Using tools and strategies to address microaggressions	2.1 (0.8)	3.9 (0.7)	88%
Exploring types of microaggressions	2.2 (0.8)	4.0 (0.8)	84%
Selecting appropriate conflict-management approaches	2.5 (0.7)	4.1 (0.8)	67%
Developing self-awareness of your unconscious biases and microaggressions	2.4 (0.8)	4.1 (0.7)	67%
Applying attributes of social intelligence to problem-solving	2.7 (0.7)	4.3 (0.8)	63%
Using strategies to promote critical thinking	2.7 (0.9)	4.2 (0.6)	58%
Identifying your social and emotional intelligence, growing relationships, and leading based on those characteristics	2.7 (0.8)	4.2 (0.7)	55%
Applying change management frameworks for successful changes within a workplace	2.5 (0.9)	3.9 (0.6)	53%
Identifying your personal leadership style and blind spots	2.7 (0.8)	4.1 (0.7)	53%
Discussing issues of equity	2.8 (0.9)	4.2 (0.7)	52%
Recognising the importance of self-awareness, social awareness and empathy	3.0 (0.8)	4.5 (0.7)	51%
Identifying attributes of your communication style	2.9 (0.8)	4.4 (0.6)	49%
Identifying your critical thinking disposition	2.8 (0.8)	4.1 (0.6)	48%
Applying leadership theory to practice	2.6 (0.7)	3.8 (0.7)	47%
Examining the effect of your actions on others	2.8 (0.8)	4.1 (0.7)	47%
Applying problem-solving strategies to a difficult professional situation	2.8 (0.8)	4.0 (0.6)	44%
Strengthening the ability to govern your emotions, attitudes and habitual reactions	3.0 (0.8)	4.1 (0.6)	39%
Describing the importance of teamwork and building a strong team culture	3.2 (0.8)	4.4 (0.6)	35%
Identifying effective communication techniques	3.3 (0.8)	4.4 (0.7)	34%
Using appropriate communication methods for different audiences	3.4 (0.8)	4.4 (0.6)	30%
Working co-operatively and collaboratively with others to achieve collective goals	3.2 (0.7)	4.1 (0.6)	29%
Managing time effectively	3.4 (0.9)	4.3 (0.6)	25%
Overall	**2.8 (0.8)**	**4.2 (0.7)**	**42%**

SD = standard deviation.
*As scored on a 5-point scale, where 1 = very low and 5 = very high.

introducing bias into the data. A more comprehensive evaluation of behaviour change could have included observational studies and feedback from individuals supervised by the trainees. Future research should be designed to replicate, extend and confirm these findings.

Conclusion

In many parts of the world, effective leadership and management are increasingly recognised as essential to the delivery of high standards of education, research and clinical practice within healthcare systems.[14,19] Formalised training, such as that described in this study, could address current gaps in health professions curricula, support continuous professional development and ensure that these principles are taught in LMIC settings.[7,19] This study may serve as a guide for the future development of leadership and management training programmes in similar contexts. We found that a focused, intensive training workshop can increase leadership knowledge and skills among faculty in the health professions.

Future directions

Assessing the effect of a programme is a long-term process and can be challenging. In future, we plan to assess this by surveying trainees annually about their leadership knowledge and behaviours. Programme leaders have noted that this programme marks an important chapter in the progression of academia at their universities, as younger lecturers assume leadership positions with enhanced leadership and management capacities.

Programme leaders plan to offer this workshop quarterly to faculty, recognising its potential dual benefits: improved leadership skills among future healthcare practitioners and benefits to the academic institution itself. This finding supports the literature demonstrating that leadership capacity plays a key role in university performance.[20] To ensure a sustainable pipeline of facilitators, the programme incorporates a 'train-the-trainer' model, in which select alumni are invited to facilitate future workshops. Future research may help determine whether such a workshop should be undertaken by all faculty in medical and health sciences institutions to optimise leadership and management; however, these early findings are promising.

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