

FACILITATING HEALTH PROFESSIONAL SCHOLARSHIP THROUGH A WORKSHOP SERIES AT THE UNIVERSITY OF RWANDA

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ABSTRACT

BACKGROUND: Scholarly writing and effective presentation skills are important for dissemination of research results and the extension of knowledge. Lack of confidence, practice, and technical skills in scholarly writing are barriers to publishing and presenting in sub-Saharan Africa.

OBJECTIVES: To address these obstacles, a six-month writing workshop was delivered to faculty at the University of Rwanda.

METHODS: The workshop design required participants meet every two weeks to learn about scholarship/medical writing through both didactic and theory application. Evaluation processes measured participants' satisfaction with the workshops, degree of motivation to pursue scholarly activities, and amount of transfer of theory and knowledge.

RESULTS: Attendance at the workshops varied from 9 to 80 participants with a mean attendance of 23. The participants self-reported their understanding of the theory at the beginning and at the conclusion of the workshops resulting in an increase of 4.0 point difference on a scale of 0 to 10 in knowledge and understanding of workshop content.

CONCLUSION: At the conclusion of the series 77% of participants confirmed they had developed an abstract or draft manuscript during the workshop, 69% planned to publish in the next year, and 85% noted they planned to deliver a presentation at a conference within the next year.

Key words (MeSH): Rwanda; research; medical writing, Education, medical

INTRODUCTION

To widely disseminate research findings and validate results, publication in peer-reviewed journals and presentations at scholarly conferences have been established as the most effective method to accomplish this [1]. The problem arises when a country has limited resources or under-developed skills to write the manuscripts and develop the presentations for dissemination.

Based on the publication records in Thompson Scientific as of May 2007, Rwanda did not have the minimal required 235 publication records between 1997 and 2007 to be included in the database [2]. This is evidence that there were limited scholarly publications from Rwanda prior to 2008. For comparison, during this same time period, the United States had over 100,000 publications [2]. Research indicates that sub-Saharan Africa produces less than 1% of biomedical publications [3].

Journals that are currently available in Rwanda for publications include the Rwanda Medical Journal which was started in 1967 and aims at offering in-depth analysis of health related issues from a professional and research centered perspective [4]. Also of significance is the The Rwanda Journal of Medicine and Health Sciences which was launched in 2013, based on the recognized limited local publications, to promote scholarly writing among staff and students at the university [5].

Some of the reasons noted that African research capacity has not paralleled high income countries are that there are few qualified researchers, less funding, poor infrastructure such as laboratories and computers, and lack of expertise in preparing manuscripts for publication [6]. Additional barriers to scholarly publishing in sub-

Saharan Africa include limitations in technology, politics, economics and environment, and sometimes limited access to electricity and the Internet, particularly in rural areas. Chu, Jayaraman, Kyamanywa, & Ntakiyiruta [7] stressed the importance of building research capability in Africa to ensure that research performed in Africa will be published and disseminated to directly impact and positively benefit the local population. Extending this urgency for publications is the critical need to find solutions to health problems in resource-poor settings through evaluation and monitoring of health research and trends from resource-poor countries [8].

Scholarly writing and presenting are important skills to master for all levels of healthcare professionals. In the academic literature, authors must communicate their study results in a succinct and clear fashion. Writing requires authors to formulate ideas, organize thoughts, describe their research methodology, incorporate and cite peer-reviewed published works and draw conclusions relevant for healthcare. Not only does this advanced expertise promote the written and verbal expression of ideas in a formal and clear manner but also stimulates the wide dissemination of research results, clinical practice standards, innovative program development and evaluation, and case studies. "The key to increasing participation by authors from developing countries in the international literature, however, is to increase their skills in designing and conducting research and in reporting the results" [9].

More importantly, through writing, publishing, and presenting health professionals based in Rwanda can share their accomplishments, develop personally and professionally, and contribute to the development of

the healthcare system. In addition, Rwandan faculty's professional advancement in the University setting partially depends on their publication, research, and conference presentation record.

Another potential benefit of building scholarship and medical writing skills locally may be the reduction in Rwandan students seeking further education abroad, and a consequential decrease in brain drain. Rwandan researchers have noted, "Studying abroad as a healthcare professional often leads to benefits such as the acquisition of knowledge and skills that could not be acquired in their country of origin" [10]. Yet study abroad programs can result in external brain drain and migration to other countries where students do not return to Rwanda. Therefore programs such as the offered workshop may allow Rwandans to build skills in areas of interest, such as research and medical writing, without studying abroad.

In attempts to address these scholarly writing and presenting skill gaps in Rwanda, the Research Center within the College of Medicine and Health Sciences, University of Rwanda; and The Wellcome Trust through THRIVE co-sponsored a six-month scholarly writing workshop series from January to July, 2015. The workshop was designed and delivered through the Human Resources for Health (HRH) Program in Rwanda, a 7-year initiative to expand healthcare capacity and training.

Workshop Series

The purpose of the workshop series, Scholarship in Health Professions Education Series, was to provide a step-by-step process for writing and preparing a manuscript for submission to a peer-reviewed journal or other indexed journal. The goals of the series were to provide an environment for learning, sharing, and evaluating strategies for writing for publication; developing presentations; offering mentorship; and providing supportive critique of work produced. A Rwandan study evaluating the mentorship role in medical students highlighted the importance of mentorship and creating positive attitudes and learning environments to enhance student learning [11]. The workshop series was designed based on the mentorship model and providing a positive and encouraging learning environment.

The workshop series originated from a perceived need to increase dissemination of what Rwandan healthcare professionals are doing and to globally capture and share their accomplishments. Rwandan health professionals possess a wealth of knowledge, experience, and expertise in their fields, yet lack proficiency and confidence to write about and present their work. Therefore, the main objectives of the workshops were to:

1). increase the participants' knowledge and skills in journal writing, research projects, and abstract conference submissions;

2) Provide an environment for learning and sharing of strategies for writing for publication;

3). offer mentorship and provide supportive critique of work produced;

4). share what Rwanda is doing; and

5). ultimately to produce either a paper, research project, or conference submission by the end of the workshop series.

METHODS

As this was a unique workshop being offered for the first time, it was important to collect appropriate information to ensure useful evaluation of processes and outcomes. Demographic information and participants' expectations were collected at the initiation of the workshop series and pre- and post-tests were administered to evaluate knowledge transfer.

The course design entailed two-hour workshops every two weeks for a total of 13 workshops over six months (table 1). Didactic content and applicable hands-on exercises were used throughout. All content was stored in the Learning Management System (MOODLE) to allow participants to examine content in-depth, review additional resources and readings and to self-direct learning if not able to attend the workshop. The workshop was open to all faculty regardless of writing experience. A participant satisfaction survey was administered at the conclusion of the workshop series.

Table 1: Workshop content

Workshop content	
Unit 1	Registration and pre-course evaluation Overview of the workshop series and outcome expectations Review of the requirements for authorship Brainstorm ideas for publication and presentations Develop teams and co-authors for publications
Unit 2	Ethics of writing and copyright permission How to avoid plagiarism
Unit 3	APA and AMA formatting and style, referencing manager software Identify a topic, purpose, and thesis for your paper Determine purpose of the paper (i.e. describe a phenomena, argue a point, reflect on personal experiences, case study, program evaluation, research project)
Unit 4	Create an outline for your paper Review writing formats and type of articles Identify potential target journals
Unit 5	Review the guidelines for authors Perform a literature search Review process for accessing reliable and valid Open Source resources
Unit 6	Completing the literature search
Unit 7	Research techniques - overview of study designs
Unit 8	Research techniques - basic data analysis
Unit 9	Developing a poster presentation or a conference abstract
Units 10 & 11	Writing the manuscript
Unit 12	Effective editing, reviewing, and proofreading, and responding to reviewer
Unit 13	Presentation skills for teaching and scientific meetings
Finale	Evaluation of teaching and learning

The workshop series was evaluated through the use of pre and post-tests to assess knowledge transfer. The pre- and post-tests were based on twenty multiple-choice questions that assessed knowledge about general writing skills and principles of scholarship and medical writing. A survey of general satisfaction with the workshop series was also completed. The satisfaction survey evaluated

fourteen criteria. The main areas evaluated included the workshop readings, the learning environment, the quality of presentations, participation activities, use of MOODLE (the Learning Management system where all workshop content was stored), length of workshop, and quality of the workshop facilitators (table 3).

Table 3: Participation Satisfaction Survey Results (N=13)

Question	Assessment of Workshop Quality					Mean (%)
	Strongly Disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)	
1. The workshop readings/materials helped me understand the theory.	0	0	1 (7.69)	6 (46.15)	6 (46.15)	4.38 (87.7)
2. The learning environment was positive to promote learning.	0	0	0	8 (61.54)	5 (38.46)	4.38 (87.7)
3. The presentations were easy to understand.	0	0	4 (30.77)	2 (15.38)	7 (53.85)	4.23 (84.6)
4. Having the content on MOODLE was helpful for self-directed review.	0	1 (7.69)	3 (23.08)	3 (23.08)	6 (46.15)	4.08 (81.5)
5. The participation activities were effective in increasing my understanding of the theory.	0	0	4 (30.77)	6 (46.15)	3 (23.08)	3.92 (78.46)
6. The length (6 months) of the workshop series was good.	0	2 (15.38)	4 (30.77)	4 (30.77)	3 (23.08)	3.62 (72.31)
7. The workshops motivated me to start working on a scholarly project (abstract, publication or presentation).	0	0	1 (7.69)	4 (30.77)	8 (61.54)	4.54 (90.77)
Question	Assessment of Lecturers					Mean (%)
	Strongly Disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)	
8. The lecturers provided useful information each workshop.	0	0	0	7 (53.85)	6 (46.15)	4.46 (89.2)
9. There was respectful communication between lecturers and participants.	0	0	0	3 (23.08)	10 (76.92)	4.77 (95.38)
10. The lecturers were knowledgeable in the material being taught.	0	0	2 (15.38)	2 (15.38)	9 (69.23)	4.54 (90.77)
11. The lecturers responded to all questions/concerns in a timely manner.	0	0	0	4 (30.77)	9 (69.23)	4.69 (93.85)
12. My learning expectations were met.	0	0	2 (15.38)	10 (76.92)	1 (7.69)	3.92 (78.46)
13. I enjoyed the workshops.	0	0	0	3 (23.08)	10 (76.92)	4.77 (95.38)
14. I would recommend this workshop to others.	0	0	0	1 (7.69)	12 (92.31)	4.92 (98.46)

*Mean and percentage calculated for all scores

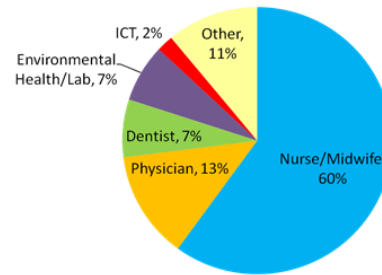
RESULTS

Officially there were 65 participants registered to attend the workshop series with 80 participants attending at least one workshop in the series. Attendance at each workshop ranged from 9 to 80 participants with a mean attendance of 23 participants.

Demographics. The demographics of the attendees included a makeup of 86% Rwandan faculty and 14% expatriate faculty. The participants were located throughout Rwanda with 60% located in Kigali City where the workshop was held and at least 25% located outside of the city. Some participants travelled up to three hours to attend the workshops. Sixty percent of the participants attended at least three workshops with 24% attending 2 to 6 workshops and 16% attending 7 to 13 workshops. Forty percent of participants attended at least 33% of the workshop series.

The professional background of the participants varied across health professions with the largest representation from the Nursing and Midwifery professions at 60%. Physicians represented 13% of attendees and Dentists 7% (figure 1). Experience in scholarly writing was limited with the majority of participants (82%) claiming little to no experience in scholarly writing.

Figure 1: Professional Background of workshop participants (N = 45)



Expectations of workshop. At the beginning of the workshop series the participants were surveyed to determine what their expectations and personal goals were for the workshops. The main themes that emerged from the survey were that the participants wanted to further develop their writing, presenting, research, mentoring, and professional development skills (table 2). The comments from the participants assisted in guiding and revising the workshop content to ensure that all topics of interest and goals were addressed.

Table 2: Participants' expectations of workshop and planned goals {participant comments at start of series} (N = 45)

Writing Skills	<ul style="list-style-type: none"> How to get idea from my mind to paper To increase my skill in writing article suitable for publication I would like to be successful in academic writing Have knowledge for referencing, plagiarism, and literature review To learn APA formatting
Presentation skills	<ul style="list-style-type: none"> To know which journals to submit paper Able to develop a slide presentation Able to develop a conference abstract To be able to present at a conference To develop a poster presentation
Research skills	<ul style="list-style-type: none"> To refine study idea To learn how to select a topic Review of research methodology To understand types of research Become involved in larger research To perform statistical analysis To become a good consumer of research To learn ethical considerations in medical field
Mentorship and professional development skills	<ul style="list-style-type: none"> To help my colleagues in terms of academic writing How to choose a good group to share ideas Critique journal articles To develop my own knowledge and skills

Knowledge transfer. The participants self-report of their level of understanding of the content and theory at the beginning of the workshop resulted in a mean score of 3.62 on a 0 to 10 continuous scale with 0 being limited or no understanding to 10 being a full understanding. At the conclusion of the workshop, the same question resulted in a mean score of 7.62 indicating a substantial increase (4.0 point difference on a scale of 0 to 10) in knowledge and understanding of workshop content.

The pre-test completed by 41 participants had a mean score of 10.9/20 (54.5%). The post-test, which included the same questions as the pre-test, was completed by 13 participants which a mean score of 13.5/20 (67.5%).

Satisfaction. The overall satisfaction with the series was high. The mean satisfaction scores for all fourteen criteria ranged from 3.62 to 4.92 on a 1 to 5 Likert scale with 1 representing strongly disagree and 5 strongly agree. The areas that ranked the highest satisfaction were the knowledge of the facilitators (4.54), their respectful communication with participants (4.77), the

timely response to questions (4.69), the material used and learning environment (4.38), and how the workshop motivated participants to start a scholarly project (4.54). Ninety-five percent of the surveyed participants enjoyed the workshops, and 98% indicated they would recommend the workshop to others.

Written comments in response to the question "What did you most like about the workshop?" included the following: "The new knowledge presented to us, all presented topics were wonderful for me; I liked the way I was a beginner and this helped to become at least in the middle of research; Content was helpful, active participation of participants and lecturers; The content was very relevant, and motivated the learners; The enthusiasm for ensuring scholarship was simply very great; and The content was helpful, simple, very easy to understand, even for the beginner."

Outcomes. At the conclusion of the series, 77% of participants confirmed they had developed an abstract or draft manuscript during the workshop, 69% indicated they planned to submit a manuscript in the next year, and 85% noted they planned to deliver a presentation at a conference within the next year. To disseminate the workshop series design and results, an oral presentation of the workshop series was presented in June 2015 at the Eastern Africa Health Professions Educators' Association conference, Innovations in Health Professional Education in Kigali, Rwanda, Africa.

DISCUSSION

Based on the interest and favorable outcomes and feedback from participants and facilitators of this inaugural workshop series it is recommended that it be repeated for a wider group of faculty. The program evaluation had some limitations and limited conclusions can be drawn from the pre- and post-test results as there was a wide discrepancy in who completed the tests, and the test results were not matched to participants. For example, some participants completed the pre-test but were not in attendance for the post-test, and some of the participants that completed the post-test may have only attended a few workshops and not completed the pre-test. Therefore no significant conclusions can be drawn regarding knowledge transfer. Also, as not all participants attended the workshops regularly, the anticipated progressive theory development may not have occurred. Lastly, outcomes for actual scholarly publications and presentations were self-reported and have yet to be fully realized.

To the authors' knowledge this is the first time that an educational workshop program of this nature and length has been delivered on site for the University of Rwanda Faculty. The high attrition rate and low post evaluation response rate were disappointing. Clearly, these issues deserve further attention. Whether the attrition patterns and post course response rates identified by the workshop series is a systemic educational, motivational, cultural, or other problem in Rwanda remains to be answered.

Addressing this important issue would require a separate study or could be specifically addressed in follow up programs.

Areas and proposed revisions to be considered if offering this workshop series again include:

- 1). Plan the series for weekly workshops for no more than a 12 week duration to reduce the length of commitment;
- 2). Schedule workshops in the morning or over lunch hour to encourage greater attendance;
- 3). Incorporate weekly assignments to promote learning and understanding of content;
- 4). Provide attendance certificates based on completed assignments to provide greater incentive;
- 5). Increase group work and active participation to increase engagement and promote more positive outcomes;
- 6). Increase faculty facilitating the workshops to allow 1:1 assistance with publication and presentation development; and
- 7). Incorporate a process to follow participants post workshop for at least one year to evaluate scholarly outcomes.

CONCLUSION

The workshop series was successful with projected outcomes starting to be realized. As developing writing skills requires practice, it was not expected that participants would publish immediately. The results suggest that the Scholarship in Health Professions Education Series successfully motivated participants to be interested in publishing and contributed to building their confidence and writing skills. Future workshops of this type are needed to continue the process of developing Rwandan researchers and scholars to disseminate the advancements being made in Rwanda's healthcare system.

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