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ORIGINAL RESEARCH

Preparing Institutions to Implement Harmonized Medicine and Nursing Curricula Through the Use of Cross-Institutional Faculty Developers

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Background: Effective implementation of new curricula requires faculty to be knowledgeable about curriculum goals and have the appropriate pedagogical skills to implement the curriculum, even more so if the new curriculum is being deployed at multiple institutions. In this paper, we describe the process of creating a common faculty development program to train cross-institutional faculty developers to support the implementation of national harmonized medicine and nursing curricula.

Methods: A five-step approach was used, including a cross-institutional needs assessment survey for faculty development needs, the development of a generic faculty development program, the identification and training of cross-institutional faculty educators, and the implementation of cross-institutional faculty capacity-building workshops.

Results: A list of common cross-cutting faculty development needs for teaching and learning was identified from the needs assessment survey and used to develop an accredited, cross-institutional faculty development program for competency-based learning and assessment. A total of 24 cross-institutional faculty developers were identified and trained in 8 core learning and assessment workshops. A total of 18 cross-institutional and 71 institutional workshops were conducted, of which 1292 faculty members and 412 residents were trained, and three cross-institutional educational research projects were implemented.

Conclusion: The success attained in this study shows that the use of cross-institutional faculty developers is a viable model and sustainable resource that can be used to support the implementation of harmonized national curricula.

Keywords: faculty development across institutions

Introduction

Implementing a new curriculum can be challenging, especially for institutions that are primarily research-based and have never implemented a competency-based curriculum (CBC). Given that a curriculum specifies what needs to be achieved

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and how it is going to be achieved, faculty implementing a new curriculum must become conversant with the curriculum and pedagogical strategies required to achieve the desired outcomes. Studies however indicate that faculties at many health training institutions are often inadequately prepared to implement new curricula that use innovative learning and assessment methodologies.[1,2] To support faculty at these institutions to acquire the necessary pedagogical skills to implement new curricula, faculty development programs (FDPs) have been established in many academic institutions globally.[3,4] FDPs have been shown to provide faculty with the most current and effective strategies for student learning and assessment but have also helped faculty to understand their roles in curriculum implementation, supported attitude change, buy-in for new curricula, and advanced health profession educational scholarship.[5–11] When health training institutions that were previously implementing non-CBC to train their graduates are decreed to implement nationally harmonized CBC curricula, faculty development programs (FDPs) are needed to prepare faculty to implement these new harmonized curricula to reduce variability in graduate exit competencies. Considering that the harmonization of curricula aims to make degrees comparable, promote student mobility, reduce graduate variability in the exit competencies, and develop curricula of benchmarks for professional programs.[12,13] Implementing a harmonized FDP will ensure that faculty at all implementing institutions acquire the same learning and assessment skills to implement the new curricula with fidelity. This in turn will support graduates, to exit with the same expected national competencies irrespective of training institutions. Because they taught and assessed in a similar manner.[14,15]

The objective of this paper is to describe the process of creating a generic FDP and the training of a unique cohort of faculty developers that train across three institutions, known as the cross-institutional health profession faculty developer group (CPEGs) to support the effective implementation of nationally harmonized CBC for Medicine and Nursing programs. Reflections on the lessons learned allude to ways to sustain this unique cohort of FDs and the usefulness of this cohort in supporting other health-training institutions that will be required to adopt harmonized curricula in the future.

Materials and Methods

A five-step approach was used, to support the implementation of the new harmonized curricular templates across three different institutions as described below. At each step, all participants were required to provide informed consent to participate, their responses were anonymized and consent was sought to publish their responses.

Step 1. Multi-Institutional Needs Assessment Survey to Develop a Generic Faculty Development Program (FDP)

The Muhimbili University of Health and Allied Sciences (MUHAS), developed an Online Google-based multi-institutional needs assessment survey using questions adopted and adapted an existing FDP. The questions were reviewed and approved by MUHAS and the University of California San Francisco (UCSF) faculty between October and November 2019. The online Google survey tool consisted of 26 questions divided into 8 sections: demographics, perceptions of the learning environment, teaching experience, use and familiarity with interactive student-centered learning and assessment methods, digital learning methods, perceived specific teaching and assessment challenges at their institutions, perceived list of priority needed faculty development topics/areas, and experience in health profession educational scholarship. The survey was designed so that faculty could rank their perceived gaps in the areas of learning and assessment methods, educational scholarship, leadership, and management skills using a five-point Likert scale.

Two weeks before the release of the survey, a link was shared with the Deans of Schools of Medicine and Nursing at all three participating institutions. Deans were requested to inform their faculty through face-to-face meetings of the purpose of the tool and exercise to facilitate a good response rate. Once faculty members were informed, the Deans of Schools sent the link via Email or WhatsApp groups to their respective faculty members to fill.

Step 2. Selection of Faculty as Cross-Institutional Faculty Developers

Deans from the schools of Medicine and Nursing were approached in October 2019 by the consortium and requested to identify learning enthusiastic young to middle-aged faculty members from the three universities to become cross-

institutional FDs. The approach utilized was similar to that used in creating the Health Professions Educators Group (HPEG) but differed in that an additional 21-item Google survey tool containing questions on demographics, teaching experience, leadership experience, attitudes toward learning, assessment, and educational scholarship, and availability to act as unpaid faculty developers were used to screen all potential candidates that had been identified by Deans.[9] Data from the 21-item Google surveys were compiled, and faculty were ranked according to their teaching experience, positive attitudes towards learning and assessment, and availability in terms of time for faculty development activities every month. The time commitment to faculty development and a positive attitude had the highest weighting for selecting candidates. The first cohort of identified faculty developers selected peer faculty to form the second cohort of cross-institutional faculty developers or cross-institutional faculty educators (CPEGs) as they later became to be known.

Step 3. Generic Faculty Development Program (FDP)

Data collected from the multi-institutional faculty development need assessment for learning and assessment were analyzed manually. FD workshop priorities ranked by faculty were summarized for each institution. Faculty development workshops for faculty of preclinical and clinical disciplines were then compared for the three institutions. A summary of the priority FD workshops for three institutions was compiled into two broad categories: 1) learning and assessment and 2) research and leadership, as shown in Table 1.

The priority FD workshops that were common for preclinical and clinical departments for the three institutions were used to develop a generic multi-institutional Faculty Development Program (FDP). The main goal of the FDP was to train and impart skills to the selected cohorts of cross-institutional faculty educators (CPEGs), that would train faculty at their institutions and across the three institutions on learning and assessment practices needed to implement the new harmonized curricula. The FDP also aimed to support the faculty of CPEG cohorts to develop an interest and champion educational scholarship. Thirdly, it aimed to groom the CPEGs to become future institutional leaders as a means to sustain faculty development programs and educational research at the three institutions. Before its implementation, the FDP was accredited by the MUHAS-Directorate of Continuing Education and Professional Development (DCEPD) and subsequently used to train both cohorts of CPEGs.

Step 4. Training of Cross-Institutional Faculty Developers

The first part of the generic FDP curriculum centered on training the cross-institutional FD developers to serve as trainers of trainers (TOTs) for CBC teaching and assessment methods and Kern's six principles of curriculum development.[16] The first part of the FDP consisted of a ten working-day training program that primarily focused on training the to-be-selected TOT FDs to master priority learning and assessment FD workshops identified and prioritized from the multi-institutional needs assessment.

The second part of the FDP, also a 10-day workshop, centered on imparting educational scholarship skills to the cohort of cross-institutional FD developers and imparting them with skills for educational research. To create transformational leaders who were committed to conducting educational research and educational research activities at their universities and across the three institutions.

In week one of the first part of the FDP, three facilitators–two from MUHAS, one from USCF, and 12 CPEGs selected from the Catholic University of Health and Allied Sciences (CUHAS), Kilimanjaro Christian Medical University College (KCMUCo), and MUHAS were invited to a 10-day workshop in January 2020. On day one of the first working week the CPEGs were informed of the purpose of the workshop and provided with a summary of the findings of the needs assessment survey. On days 2–5 of the first week, the CPEGs were divided into four groups, each consisting of one faculty member representing one of three partner institutions. The four groups were then randomly assigned and trained to master the two priority workshops as a group of the workshops in the FDP developed from the multi-institutional needs assessment as presented in Table 1.

In the second week, each of the CPEG groups was tasked to practice conducting their group-specific workshops, face-to-face under supervision, to 25 other faculty members of one of the consortium training institutions. The purpose of this activity was for CPEGs to practice workshops and obtain feedback before they conducted the same workshops at their institutions and across institutions.

Table 1 Summary of Crosss-Cutting Institutional Faculty Development Needs

Faculty Development	FD for Learning and Assessment	FD for Research and Leadership
Competency Domains	Plan, Develop and Evaluate Learning Programs: i. Develop an instructional unit for a program/course in line with the requirements of the national accrediting institution ii. Apply principles of curriculum planning iii. Articulate curriculum goals iv. Write SMART course learning outcomes v. Sequence content effectively to meet outcomes. vi. Select appropriate instructional materials. vii. Choose appropriate course/ program evaluation instruments **Teach in variety of Settings**: i. Display an enthusiasm for teaching and support of students ii. Provide a safe learning environment iii. Demonstrate knowledge of adult learning principles iv. Demonstrate the ability to teach large groups, small groups and in the preclinical, clinical, laboratory or online settings v. Select the appropriate teaching method based on expected learning outcomes vi. Determine most cost-effective teaching strategies and learning experiences to accomplish outcomes using evidence-based criteria vii. Modify teaching/learning experiences in response to feedback viii. Demonstrate an awareness of a variety of student learning styles and adapts teaching methods effectively ix. Apply teaching methods that foster student centred learning, critical thinking and problem-solving skills in students x. Manage individual, small group and large group dynamics xi. Motivate and listen to students xii. Model ethical and professional behaviours	Leadership and Management: i. Manage time, effectively balances work and personal needs ii. Resolve conflicts, negotiates, fosters collaboration and cooperation iii. Mentor individuals to achieve success iv. Form part and builds cohesive teams v. Communicate clearly, openly, honestly, and concisely vi. Delegate responsibilities vii. Demonstrate respect to colleagues and subordinates viii. Demonstrate self-awareness of individual strengths and weakness ix. Demonstrate commitment to self-development including continuing education, networking, reflection and personal improvement **Research and Innovation**: i. Demonstrate the ability to design and implement research studies that evaluate clinical practice, service delivery and educational interventions ii. Adhere to guidelines and regulations regarding the ethical conduct of research and use of human subjects iii. Find, use and evaluate research resources iv. Demonstrate skills to engage the community v. Use oral, written and visual communication effectively to express research ideas and findings vi. Demonstrate skills required to disseminate research findings using a variety of channels. vii. Translate research findings into popular science viii. Create effective scientific poster presentations ix. Define authorship responsibilities x. Write scientifically for conferences and journals xi. Demonstrate Effective Presentation Skills xii. Demonstrate grant writing skills

Step 5. CPEGs Faculty Development Workshops at Institutions and Across Institutions

It was planned that the CPEGs would conduct one institutional FD workshop on learning and assessment every month and one cross-institutional workshop every three months. The cross-institutional workshops were to be conducted in a manner that CPEG groups that consisted of one faculty member from each of the three partner institutions would jointly conduct a workshop at one of the partner institutions each quarter. The planned schedule was however interrupted by the COVID-19 pandemic. To mitigate the effect of COVID-19 restrictions, the consortium team arranged to train the CPEGs on how to use Zoom and Google Meet, so that the planned faculty development sessions could continue and minimally affect project timelines. A two-day Zoom training on Zoom and Google Meet was conducted by MUHAS and USCF faculty. The CPEGs then used Zoom platforms to conduct monthly and quarterly workshops on topics that lent

themselves to online learning, such as test item analysis, professionalism, large group teaching, small group teaching, and critical thinking.

Results

Needs Assessment for a Generic Multi-Institutional Faculty Development Program

A total of 403 out of 689 (58.5%) faculty members from the three institutions responded to Google's online multi-institutional faculty development needs assessment survey. The majority of the respondents were male 372 (54%) and had the academic rank of lecturer 269 (39.1%). Data compiled from the needs assessment identified eight core common faculty development workshops for learning and assessment needed for preclinical and clinical faculty to be prioritized for the generic FDP, as shown in Table 2.

Faculty Educator Characteristics

Initially, 27 participants were identified as potential FDs for the first cohort by the Deans of Schools of Medicine and Nursing from the three institutions. The identified candidates in the first cohort came from various health professions, including pharmacy (2), nursing (7), dentistry (1), medicine (11), radiation therapy (1), medical laboratories (3), environmental sciences (1), and public health (1). Their academic ranks ranged from tutorial assistants to associate professors. The mean number of years of teaching experience was 10.8 years. After implementing the 21 item google screening tool to the 27 identified candidates, 12 candidates were selected based on their responses, interest, and commitment to becoming the first cohort FDs, as reflected in some of their answers quoted in the text below in response to why they wanted to become faculty developers.

> I love being an academician and teaching is my passion.- Nurse -CUHAS.

> To be able to experience the passion I have for both clinicals and teaching; and to pass on to the next generation- Doctor - KCMUCo.

The first cohort of CPEGs was a gender-balanced group and comprised inter-professional faculty from the schools of medicine, nursing, dentistry, and public health.

The second cohort of CPEGs (12), were faculty identified by the first cohort of CPEGs. The second cohort of CPEGs, consisted of faculty from the schools of medicine, public health, nursing, pharmacy, and the Directorate of Library Services, as shown in Table 3.

Faculty Development Workshops

As a group, the CPEGs from March 2020 to February 2023 were able to conduct 12 cross-institutional workshops and 67 institutional workshops with over 900 faculty members and 400 residents who were purposefully trained to act as preceptors like that of the MUHAS HPEGs[17] as presented in Table 4.[17]

Educational Scholarship

The first cohort of CPEGs developed and jointly conducted three medical education research projects after obtaining ethical approval from their respective institutions. All participants that participated in the three projects focusing on faculty readiness to use e-learning to implement nationally harmonized curricula for Medicine and Nursing

Table 2 Cross- Institutional Faculty Development Priority Workshops

1.	Large Group Teaching	5.	Professionalism lapses
2.	Small Group Teaching	6.	Feedback
3.	Clinical teaching	7.	Test Construction and Item Analysis
4.	Developing Assessment Instrument	8.	Observational Assessments

Table 3 Characteristics of First and Second Cohort of Cross- Institutional Faculty Developers (C-PEGs`)

S/N	Attribute		MUHAS (n=4)	CUHAS (n=4)	KCMUCo (n=4)
1	Gender	Male	4	4	2
		Female	4	4	5
2	School Discipline	Medicine	2	6	5
		Nursing	2	2	2
		Dentistry	1		
		Pharmacy	1		
		Public health	1		1
		Library	1		
3	Academic rank	Assistant Lecturer	2	1	1
		Lecturer	3	5	7
		Senior Lecturer	2	2	
		Associate Professor	1		
4	Subject Discipline	Preclinical Sciences	3	2	1
		Clinical Sciences	5	6	7

Table 4 Faculty Development Workshops Conducted by Cross-Institutional Faculty Developers (C-PEGs)

S/NO	Type of Workshops (N)	MUHAS	CUHAS	KCMUCo
1.	Online on e-learning workshops	5	0	0
2.	Face to face	26	19	32
3.	Number of Faculty and postgraduate students trained	503	272	342

undergraduate degree programs, clinical preceptors' motivation to teach undergraduate Medicine and Nursing students, and medical and nursing students' perceptions of teaching environments respectively, provided written informed consent.

Discussion

To the best of our knowledge, this is the first study to describe the creation of cross-institutional faculty developers or CPEGs to facilitate a faculty education program to support the implementation of national harmonized curricula for medical and nursing degrees at three higher-learning medical institutions. Our unique approach t began with a multi-institutional needs assessment survey to establish the need areas for faculty development to assist in implementing harmonized CBC a. In the literature, the majority of faculty development needs assessments have been conducted at a single institution or for a specific discipline.[17] This is the first time a needs assessment of faculty development for CBE learning and assessment has been conducted at multiple institutions and used to create a generic faculty development program. The development of a generic FDP that could be used to train faculty at the three institutions was key to supporting the relevance, acceptability, and sustainability of the FDP.[5]

The addition of the 21-item Google survey in addition to the purposive selection of CPEG supported the identification and selection of young to middle-aged committed faculty with the potential to grow into academic leaders and champions of faculty development and educational scholarships at their institution.[18] Studies indicate that commitment, satisfaction, and mastery are key attributes for selecting faculty to become faculty developers.[18] Especially when considering that most faculty in low- and middle-income countries are recruited based on their grade point average score alone, without any consideration if they love to teach or not. Particularly as engaging in FD activities that have no incentives financial or otherwise for this group, requires truly committed faculty to maintain these cohorts of FD. Hence the process of selecting and recruiting faculty with commitment and a passion for teaching may be a strategic step to support the long-term retention of these unique Cohorts beyond the project timelines.

The CPEGs had an impact on transforming the faculty development culture of the three training institutions. Firstly, the CPEGs played a major role in assisting their institutions in mapping their curricula to identify gaps and best practices that were incorporated into the national harmonized CBC for nursing and medicine by becoming leaders of change.[19] Secondly, the CPEGs continue to support the implementation of CBC at the three institutions through workshops to train faculty and postgraduate students on the new learning and assessment methods needed for these new curricula. Thirdly, the CPEGs have spearheaded educational research by conducting cross-education research studies aimed at identifying the challenges in implementing the new harmonized curricula at institutions. Fourthly, the establishment of Health Profession Education Units at all three institutions has inculcated the culture of faculty development and supported the recognition of health professional education research as an essential research domain for educational excellence.[20,21]

Reflections from this study suggest that this unique cohort of faculty developers as a result of the existing educational research collaborations may result in more inter-institutional collaborations for educational activities and other research among the three institutions and beyond. The availability of this unique cohort could also be a resource to be used by other institutions in the country that will be required to implement harmonized nursing and medicine undergraduate curricula in the future.

Study Limitations

This study had a small sample size, and the Deans of Schools and the first cohort of CPEGs purposefully selected the faculty developers from the three institutions. Hence the commitment and positive attitude of the faculty developers could have been a result of bias in the selection process. We also observed that our response rate to the online multi-institutional needs assessment survey to develop the generic faculty development program was 54%, only. This would suggest that the responses may not be representative of the priority faculty development needs for Competency-based education. To validate the findings of the needs assessment at each faculty development workshop conducted by CPEGs evaluation forms were provided for faculty to list required future faculty development workshops. This was done to identify additional training needs by faculty at each institution to supplement priority workshops specified in the generic FDP.

Conclusion

The success attained in this study shows that the use of cross-institutional faculty developers is a viable model and sustainable resource that can be used to support the implementation of harmonized national curricula. Future studies are needed to examine the long-term impact of CPEGs on the implementation of harmonized curricula within pilot institutions and beyond.

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Author Contributions

All authors made a significant contribution to the work reported, whether that is in the conception, study design, execution, acquisition of data, analysis, and interpretation, or all these areas; took part in drafting, revising, or critically

reviewing the article; gave final approval of the version to be published; have agreed on the journal to which the article has been submitted; and agree to be accountable for all aspects of the work.

Disclosure

The authors have no conflicts of interest to declare for this work.

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