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Contextualisation of medical education innovations in a resource-limited country: A case study from Cambodia

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Abstract

Introduction: There is a global call for transforming medical education to meet evolving healthcare needs. However, navigating the challenges of educational change in resource-limited contexts requires key stakeholders, from leaders to educators and students, to adopt innovative approaches. This paper presents practical examples of such innovations from the University of Health Sciences (UHS) in Cambodia's experiences, followed by discussions on enabled and hindered factors of their initiation, implementation, and sustainability. This paper also aims to inspire future medical education innovations.

Methods: This paper relied on internal document reviews, including strategic plans, project proposals & planning, course syllabi, and evaluation reports, and the collective working experiences of co-authors in initiating, implementing, and leading these innovations.

Results: Three innovative projects at UHS illustrated how creative ideas are put into practice, including (1) The elective International Programme (IP) with a dual objective of training local trainers while preparing students for international mobility, (2) The Master of Health Professions Education (MHPE), a cost-effective faculty development programme delivered in-person at UHS campus by faculty of a university partner, and (3) Peer-assisted Learning (PAL), a student-led initiative to promote learning skills.

Conclusion: Medical education innovations are needed in resource-limited contexts. The success of these initiatives resulted from multi-factors, notably long-term strategic planning, supportive leadership, active partnerships, policy commitment, local champions, resourcefulness, and student engagement. The late adoption of technology-enhanced learning, the necessity for robust faculty development programmes, and early investment in student leaders, coupled with post-graduate retention planning, represent challenges that present strategic opportunities.

Practice Highlights

- Medical education innovations are needed in a resource-limited country like Cambodia.
- Piloting before widespread implementation allows for tailoring to a specific local context.
- Long-term partnerships between external experts and internal faculty foster contextualisation, local capacity-building, and stakeholder buy-in.
- Continuous and supportive leadership with strategic planning is essential for driving and sustaining educational innovations.
- Identifying and nurturing local champions to carry out innovations is key to sustainability.

I. INTRODUCTION

The 1910 Flexner report inspired the transformation of medical education to a science and knowledge-based curriculum. A century later, an influential Lancet report called for transforming health professions education to meet changing population healthcare needs (Frenk et al., 2010). However, in resource-limited contexts, doctor training has not kept pace with public health challenges like an increase of chronic diseases. Moving away from the Flexnerian model presents significant challenges to the status quo because it involves leadership, technical, financial, and administrative commitments, specifically in Cambodia (Lim et al., 2024). To address these issues, key stakeholders, from leaders to educators and students, must adopt innovative approaches to medical education that are culturally and contextually appropriate.

This paper showcases three innovations that exemplify how creative ideas are put into practice at the university level: the elective programme, faculty development, and student-led initiative. Innovation, by definition, refers to the ability to introduce novel and useful ideas within a specific context. These examples are considered new and beneficial for stakeholders in the Cambodian context. The first two are practices adapted from other countries, while the last is an initiative of, by, and for students from within the university. The “Triple I” model of three phases of initiation, implementation, and institutionalisation, is used to discuss these innovations, especially the challenges to sustainability (Fullan, 2015). This paper also aims to inspire future innovations in medical education.

II. THREE INNOVATIONS IN MEDICAL EDUCATION

University of Health Sciences (UHS) is the oldest and largest state-owned university of health sciences in Cambodia. In late 2001, UHS became a public administrative institution entrusted by the Ministry of Health to be a leading university in medical education reforms. Below are three medical education innovations at UHS.

A. Elective Programme

Launched in 2013 by UHS-Faculty of Medicine (FoM) with financial and technical assistance from development partners, especially France, the International Programme (IP) is a tool for educational innovation and strengthening international relationships. This 3-year elective programme annually selects 60 outstanding students during their clinical phase (years 4-6). The IP has a dual objective: training of trainers (ToT) and student preparation for international mobility. To achieve these goals, UHS brings foreign professors from

partner universities to role model a new generation of Cambodian trainers in modern teaching. Students actively engage in four main activities: academic training, language courses, research methodology, and socio-cultural activities. Visiting professors teach IP undergraduate students in the mornings and post-graduate residents in the afternoons to maximise their in-country time. Local trainers co-train with these professors in their respective disciplines to learn new teaching methods. French, English, and Khmer languages are mediums of instruction.

The IP has functioned as a pilot initiative, introducing student-centered learning, simulation-based education, and standardized assessment to the medical curriculum. These approaches have been well-received by faculty and students. In 2017, case-based learning (CBL) and simulation were scaled up to all students at FoM. The IP is considered an achievement because of its contribution to UHS’s strategic goals: educational innovation, ToT, and strengthening international relations. Presently, UHS has a pool of at least 60 trainers in CBL and simulation at FoM. Furthermore, the IP model was replicated within UHS’s nursing and pharmacy programmes in 2015 and 2018, respectively.

B. Faculty Development Programme

Faculty development (FD) is key to supporting educators in their multifaceted roles. UHS has invested in FD programmes to equip faculty with knowledge and skills, specifically responding to reforms in health professions education (HPE). A key initiative was a 2-year Master of Health Professions Education (MHPE) programme, offered in partnership with University of the Philippines (UP)-Manila from 2011 to 2016. Funded by the WHO and French Cooperation, the programme catered to two cohorts of 28 health professionals, including doctors, dentists, pharmacists, nurses, and medical laboratory technicians.

The programme’s hybrid delivery model was a historical first at UHS. It combined intensive 5-day on-site sessions led by visiting UP-Manila faculty, followed by distance learning modules. The MHPE programme is not only for individual professional development but also institutional development. While the programme faced challenges with language barriers, inter-professional learning, and technology limitations, it yielded positive outcomes in local human resource development in HPE. Eight students graduated with master’s degrees, while 12 received diplomas. Many graduates now contribute significantly to UHS, staffing the pedagogy unit and different faculties.

Building on local expertise, those MHPE graduates embarked on own FD programme development at UHS, beginning with a mandatory 4-day basic pedagogy course for all educators in 2015. The pedagogy unit has trained over 518 teachers in basic pedagogy. Currently, UHS's FD programmes include short courses and workshops; strategically tailored to address national, institutional, and teacher needs. These programmes focus on competency-based course development, lesson planning, writing MCQs, and practical teaching skills (e.g., interactive lectures, small group, and simulation-based facilitation). For sustainability, UHS prioritises FD initiatives that are competency-based, cost-effective, and fit to the Cambodian context. Most FD programmes are now designed and delivered in Khmer by local trainers. UHS still collaborates with international partners to develop different FD programmes, especially for new HPE topics like interprofessional education (IPE).

C. Student-led Initiative

The value of students as active partners in education is well-established. Recognizing this notion, UHS actively promotes student engagement, particularly student roles in teaching. Through the Global Health through Education Training and Service (GHETS) grant (2016-2022), six cohorts of 56 students participated in the Essential Skills in Medical Education (ESME) online course. A group of student champions from the first cohort (including two authors: SL and SC) partnered with UHS-Medical Student Association (MSA) to launch the Peer-assisted Learning (PAL) club. PAL initially began as a 3-month extra-curricular course designed to integrate learning skills with basic science subjects. It has currently evolved into a hub for student-led initiatives, offering the Annual Medical Education Conference (AMEC), training courses, workshops, and socio-cultural events. Most activities were postponed during the pandemic, and some were restarted by UHS-MSA in 2023.

III. DISCUSSION

The "Triple I" model describes three phases of educational change over time (Fullan, 2015). The first phase is initiation, an attempt to embrace innovations. The second phase is implementation, the process of putting ideas into action. The third phase is institutionalisation when innovations become routine. The goal of change is institutionalisation; however, it does not occur without innovative adoptions being successfully initiated and implemented. This model is a conceptual framework used to discuss enabled and hindered factors in medical education innovations at UHS, Cambodia.

Active collaboration with development partners drives educational change at national and institutional levels in Cambodia (Lim et al., 2024). The IP and FD are examples of technical cooperation, directly contributing to the university's long-term goals of educational innovation, human resource capacity-building, and international relations strengthening. Aligning innovations with organisational goals, shared beliefs, and core values is crucial for acceptability and implementation effectiveness (Century et al., 2012). Such partnerships hold particular significance in resource-limited contexts. Through external expertise and funding, medical schools can overcome barriers such as stakeholder buy-in, technical and resource constraints.

Innovations utilizing existing or external resources are more likely to gain approval from university leaders. Student engagement can positively enhance the university's reputation on the international and national stage. UHS continues supporting PAL student-led activities, which were initially cost-free and run by highly motivated student volunteers, despite not aligning directly with strategic priorities and may not be perceived as needed by stakeholders.

Innovation characteristics influence the process of putting ideas into action. Relevant stakeholders may struggle to perceive the necessity for change because needs are often unclear at the beginning of innovation. Educational change is inherently complex, demanding shifts in educational philosophy, teaching strategies, and even skillsets. While this complexity poses implementation challenges, it also results in greater change because more is being attempted (Fullan, 2015). The IP was initially co-led with international experts, and local stakeholders ensured contextual and cultural relevance through co-creation and co-teaching. The IP marked a radical departure from the status quo, transitioning from teacher-centered to student-centered instruction. This shift presented significant challenges to many UHS teachers whose teaching practices rely on didactic lectures. Considerable efforts are needed to increase faculty buy-in, commitment, and capacity-building. Placing teachers as co-trainers alongside visiting professors is one way to overcome these challenges and contribute to the success.

Piloting is another enabling factor in which innovations are tested before committing to their full adoption. The IP, FD, and PAL all started as small-scale, elective experimentations before scaling up to benefit all.

Sustainability remains a persistent challenge in resource-limited contexts. Innovative projects will likely cease after a few years of implementation due to a lack of financial, technical, or stakeholder commitment. At UHS, the IP, FD, and PAL are examples of sustainable innovations. Several factors contribute to sustainability. Changing university policies is key to ensuring medical schools engage in long-term transformation (Bland et al., 2000). These three initiatives were built into organisational and programme structures through policy change, budgeting, or academic calendar. For instance, UHS incorporated PAL student-led activities into its 5-year strategic plan (2019-2023) and allocated a small stipend for student peer-teaching. Additionally, students receive recognition through certificates and further opportunities. PAL is sustained through MSA, an established organisational structure at UHS.

Strong leadership is paramount for driving and sustaining innovations (Bland et al., 2000). Beyond mere initiation, innovation implementation requires ongoing evaluation, revision, and expansion plans to sustain success. UHS strategic plans (2014-2018 and 2019-2023) made public commitment by setting clear indicators for innovative activities such as the IP and FD. These programmes had local leaders do hard work overtime. Empowering local champions to carry out innovations is key to sustainability. UHS exemplifies this through proactive approaches such as identifying and training faculty and student leaders, providing them opportunities to engage in impactful work. Notably, most FD programmes at UHS are now developed and conducted in Khmer by local trainers, underscoring institutional commitment to local capacity-building and sustainability.

Many challenges still exist. The university's late adoption of technology-enhanced learning hindered its response to the COVID-19 pandemic, causing disruptions when moving to distance learning. Limited resources add another layer of complexity. To ensure effectiveness and sustainability, UHS must invest in technology-enhanced and robust FD programmes, especially in the context of transitioning toward competency-based medical education. Securing funding can be achieved through collaborative partnerships and increased budgets from UHS itself. Investing in student leaders early holds promise; however, results may not be immediately apparent. It takes a bird's view to allocate resources to develop future leaders, and a transition plan is needed to retain these student champions at UHS after their graduation.

IV. CONCLUSION

Medical education innovations are needed in a resource-limited country like Cambodia. UHS strategically launched three small-scale programmes to meet institutional goals in medical education reforms. The sustainability of these programmes is due to several factors. Leveraging both internal and external resources, including development partners, local faculty and students, enabled knowledge transfer, and maximised resources. Long-term partnerships between international experts and local faculty resulted in contextualisation, capacity-building, and stakeholder buy-in at the home institution. Identifying and nurturing leaders and champions among faculty and students was a key feature alongside piloting innovations, allowing for local adaptations before scaling up. The challenges facing the university can be strategically turned into further opportunities.

Notes on Contributors

Sengkhou Lim conceptualized and designed the study, collected and analyzed data, and wrote the manuscript.

Steve Vilhem analyzed data and drafted the International Programme part.

Sambath Cheab provided input on the initial study design and participated in data collection and analysis.

Laura N. Goldman provided guidance on manuscript writing, contributed to the discussion section, and edited the whole manuscript into plain English.

Aklinn Nhem provided source documents, validated information, gave feedback, and proofread.

Ponndara Ith validated information, gave feedback, proofread, and edited the text.

Youttioung Bounchan provided source documents, validated information, gave feedback, proofread, and edited the manuscript. All authors have read and approved the final manuscript.

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Declaration of Interest

The authors report no conflict of interest.

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