Understanding facilitators, barriers, and solutions in developing and implementing an interprofessional education module for chronic disease management in Vietnam

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Abstract

Background: Interprofessional education (IPE) in developing countries remains challenging. The University of Medicine and Pharmacy, Hue University, developed an IPE module for chronic disease management in Vietnam, incorporating classroom-based interactive learning, simulation with standardised patients, clinical practice, and home visits. This study explores lecturers' experiences to identify facilitators, barriers, and solutions in the development and implementation of the module. **Methods:** An exploratory qualitative method with focus group interviews was conducted with 25 lecturers from 11 disciplines involved in this IPE module. Data were thematically analysed using NVivo 1.7.2 software. **Results:** Four main themes emerged, including 'motivation', 'advantages', 'challenges', and 'suggestions'. Facilitators of successful implementation included strong institutional support, high lecturer motivation, expert-led faculty development, and robust collaboration between the university and primary healthcare facilities. Major barriers involved challenges in delivering feedback on interprofessional care plans, logistical complexities related to patient and standardised patient preparation, resource and time constraints, and the intensive demands of new assessment tools. To overcome these challenges, strategic solutions were employed, such as recruiting volunteer patients, training standardised patients, designing complex case scenarios around chronic disease and multimorbidity, increasing module offerings per semester, training faculty in assessment methods, hosting IPE conferences to recruit additional lecturers, and integrating the module into the formal academic curriculum. **Conclusion:** Successful IPE implementation requires recognising context-specific facilitators and barriers and tailored solutions. A structured seven-step process is recommended, offering a scalable and adaptable model for other institutions in Vietnam and similar settings globally.

Keywords: *Interprofessional relations, interprofessional education, medical education, chronic disease.*

1. INTRODUCTION

Interprofessional collaboration (IPC) in education and practice is essential because it is crucial in providing patient-centred, high-quality care and an innovative strategy to mitigate the global health workforce crisis [1, 2]. IPE programs are offered for various healthcare disciplines, mainly at the undergraduate level [3]. Studies show IPE was designed in different learning contexts, mainly in the classroom and simulation [4, 5]. Besides, collaborative instructional practices were adopted in practice settings to understand the roles of other healthcare professions [6]. Longitudinal and immersive team-based interprofessional training in a clinical learning environment in a primary care setting was proven to help improve trainees' interprofessional competencies [7]. In addition, researchers emphasise IPE in a community-based setting, which promotes learners' understanding of community healthcare needs and real-life collaboration with society members [8, 9].

However, IPE was mainly adopted in developed countries [3]. IPE implementation in developing countries remains challenging due to competing

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professions, traditional curricula, a uni-professional culture as opposed to an interprofessional culture, and individualism in the health sector [10, 11]. This explains why adopting IPE programs and interventions in these countries is challenging [12]. Vietnam is a developing country with 29 medical universities offering various vocational healthcare programs [13]. Almost all universities lacked IPE, including the University of Medicine and Pharmacy, Hue University (HueUMP) [14]. Huyen et al. indicated that healthcare providers lack IPC in daily practice, and IPE programs need to be developed and implemented to address these deficiencies [15]. Therefore, a pilot IPE module has been designed and implemented at HueUMP. This is the first IPE module for chronic disease management in Vietnam with interactive learning activities in the classroom, simulation with standardised patients, clinical practice, and home visits. A study has shown that students positively recognised key design features of the IPE module, and chronic disease management at the primary care level was a suitable context for training students to work interprofessionally [16]. Moreover, this IPE module, designed and implemented to focus on patient-centred practice within a primary care context, has been proven to positively impact students' readiness and interprofessional collaboration competence development [17].

However, this pilot IPE module was only offered to 190 students and needs to be offered to more than 1500 students each year at HueUMP. Within a context of lacking IPE in Vietnam and other developing countries, to maintain, expand and integrate the IPE module into the university's formal educational curricula, exploring the facilitators, barriers, and solutions during the development and implementation of the IPE module is necessary. Besides, studies indicated that understanding teachers' perceptions is needed to explore the factors influencing IPE [18, 19]. Therefore, we performed a study to explore lecturers' experiences while developing and implementing the IPE module. That may contribute to expanding this IPE module at HueUMP, designing and integrating an IPE module in other universities in Vietnam and other countries when they are in the first step of developing IPE.

2. METHODS

2.1. Study design

An exploratory qualitative approach was used to gather focus group data from the lecturers involved in an IPE module [20].

2.2. Study setting

HueUMP is a large medical university in Vietnam with approximately 10,000 students that offers undergraduate training programs in ten healthcare educational programs. The first IPE module at HueUMP has been developed and implemented following the guidelines and strategies in the literature [21-23]. Besides, the IPE module has been developed in close collaboration with the University of Antwerp, where IPE has already been offered for 20 years [24, 25]. Based on this literature, the IPE module has been developed and implemented in five steps, including (1) planning, (2) curriculum design, (3) learning content development, (4) building human resources, and (5) implementation.

(1) Planning

Establish a mission: In January 2022, IPE became a core part of the educational innovation strategy at HueUMP, decided during a meeting of the university board, Education Innovative Council, Undergraduate Education Office, and 10 centres/faculties/departments. A survey assessed student readiness for interprofessional learning, leading to the creation of a clinical IPE module for seven undergraduate programs [26]. *Set up an IPE module team:* 64 involved professionals, including 35 lecturers from 10 departments, seven international IPE experts, seven clinical preceptors, and 15 staff members. A lecturer guide is provided for each student group.

(2) Curriculum design

Define learning outcomes: Learning outcomes and learning activities were developed based on the IPC Core Competencies [27], aligning with the curricula of all seven health programs at HueUMP. *Design a model curriculum:* Miller's clinical competence pyramid [28] was adopted to structure the learning process with interactive learning and authenticity for interprofessional engagement [23, 29]. Learning activities were designed to be spread over ten sessions, including two sessions of theory and eight sessions of practice-based. *Assessment strategies:* The Interprofessional Collaborator Assessment Rubric was used for self-, peer-, and lecturer assessments by Objective Structured Clinical Examination (OSCE) [30]. A portfolio was used to document and evaluate individual competence development. The students' final assessment was 50% based on their portfolios and 50% on the rubric-based assessment.

(3) Learning content development

Develop learning materials: ique interprofessional instructional plans, learning materials, and guides were developed. An e-learning

platform provided online access to these materials. *Work with cases:* Each case, reflecting common health problems and requiring all disciplines' involvement, was screened for practicality, often involving chronic or multimorbidity conditions needing coordinated care.

(4) Building human resources

Faculty development: Six workshops, coordinated with experts from the University of Antwerp, Ghent University, the University of Liege, and Harvard University, introduced teachers to IPE concepts, their impact on each profession, the teaching plan, and the assessment tool. *Creating interprofessional student groups:* Students were invited to register voluntarily to participate in this IPE course, including 5th-year in Medicine, Odonto-Stomatology, Preventive Medicine, and Vietnamese traditional medicine, the 4th-year in Pharmacy, the 3rd-year in Nursing, and the 2nd-year in Midwifery. In total, 210 students enrolled and were divided into 30 interprofessional groups, each comprising seven students from different programs. *Logistics:* The core team and 15 staff managed logistics for the IPE module, including scheduling, recruiting and training standardised patients, coordinating with health facilities, inviting actual patients, and handling administrative tasks.

(5) Implementation

The IPE module was offered to 210 students from seven programs from 28th May 2022 to 30th July 2022. The module was implemented over 10 sessions, with each session per week involving theoretical sessions, practical sessions and organising evaluations. *Theoretical sessions:* The first session was organised in the first week to introduce the module and get to know each other. Case studies with small group discussions were focused on in the second session. *Practice sessions:* In the third session, students engaged in simulation with standardised patients. Clinical practice occurred in primary healthcare facilities in the fourth session, followed by home visits in the fifth session. Interprofessional groups reflected on care plans in the sixth session. Repeat clinical practice sessions, home visits, and reflection occurred in sessions seven, eight, and nine to enhance students' IPC practice. *Organising assessment:* The assessment was organised with a clinical simulation involving standardised patients in the tenth session.

2.3. Study population and sample

A purposive sampling approach was used to perform the focus group interviews. All 30 lecturers who participated in guiding students in the IPE module were chosen and invited to participate in the interview. These lecturers were from ten departments at HueUMP with ten different professional backgrounds, including Family medicine, Internal medicine, Nursing, Obstetrics and gynaecology, Odonto-Stomatology, Paediatrics, Pharmacy, Preventive Medicine, Rehabilitation, and Vietnamese traditional medicine. These lecturers will be randomly divided into groups of a maximum of eight lecturers, which is considered an optimum number for a focus group [31]. Each group required lecturers from different professions to gain insight into different views of lecturers. A plenary group discussion with all lecturers will be organised at the end of the study.

2.4. Instrument

The semi-structured interview guide was developed by the research team, and topics were derived through discussion and several reviews by members of the IPE interest group (Supplementary 1). A narrative approach was used with the interview guide. The interview guide was compiled as a bilingual questionnaire in English and Vietnamese to allow non-Vietnamese research members to supervise data collection and analysis. The four core questions were as follows:

1) What are your experiences as a lecturer in developing and implementing the IPE module?

2) What are the facilitators and barriers to implementing the IPE module?

3) What are the sustainability and scalability of the IPE module?

4) What is your suggestion for improving the IPE module?

2.5. Data collection

The interviews were conducted from 12th August to 18th August 2022, after completing the IPE module. All focus group interviews were performed in a private room at HueUMP and lasted approximately 90 minutes. Three focus groups were moderated by a PhD (N.L.) using the interview guide to lead the discussion. A professor (T.N.M.) moderated the plenary focus groups of all participants. Two secretaries, a PhD (T.D.T.H) and a medical doctor (N.T.T.H), observed and noted during the interviews. All the researchers were experienced in qualitative research. All focus group interviews were audio recorded.

2.6. Data analysis

A thematic analysis was conducted by a multidisciplinary team of researchers from seven different professions [32]. Focus group interviews were transcribed verbatim in Vietnamese into Microsoft Word, and their accuracy was verified by comparing

them with the original audio recordings performed by a research team member (A.H.T.Q.L). The data were then imported into NVivo 1.7.2 software, coded in English with the initial coding by T.T.H.N and collated by the research team (T.M.N, J.W, M.V, G.T). The codes were presented to the team members and further grouped into potential themes. These themes were reviewed and refined in the context of the coded extracts and the entire data set. Finally, the themes were clearly defined and named.

2.7. Ethical approval

The study protocol was approved by the Medical Ethics Committee of the University of Medicine and Pharmacy, Hue University (number: H2022/003 10th January 2022). Before the interview, participants were fully informed about the research purposes and the process and signed a consent form if they agreed to participate in the study. All gathered data of the participants has been kept confidential.

3. RESULTS

3.1. Participants' characteristics

The demographic characteristics of participants are summarised in Table 1. A total of 25 lecturers out of 30 invited lecturers participated in interviews in 10 professions. The rate of male and female lecturers was similar, with 52% male lecturers (n = 13) and 48% female lecturers (n = 12). The average age of the lecturers was 35 years old. Additionally, 11 years was the average year of lecturers' experience in the current profession.

Table 1 Demographic characteristics of participants (N = 25)

Profession	Proportion male to female lecturers	Average age	Years of experience in current profession
Family medicine	2/3	31 [29 - 36]	7 [5 - 11]
Internal medicine	0/1	43	19
Nursing	3/0	43 [39 - 49]	19 [15 - 25]
Obstetrics and Gynaecology	0/1	29	5
Odonto-Stomatology	2/1	34 [30 - 40]	10 [6 - 16]
Paediatrics	2/0	33 [32 - 34]	9 [8 - 10]
Pharmacy	2/1	36 [28 - 45]	12 [4 - 21]
Preventive Medicine	1/1	35 [27 - 43]	11 [3 - 19]
Rehabilitation	1/1	38 [35 - 40]	14 [11 - 16]
Vietnamese traditional medicine	2/1	32 [31 - 32]	8 [7 - 8]
Total	13/12	35 [27 - 49]	11 [3 - 25]

3.2. Findings

Four main themes represented the perception of lecturers and factors that influence IPE, including 'motivation', 'advantages', 'challenges', and 'suggestions'. These main themes emerged consistently from all focus groups.

Motivation

In this theme, motivation is described from lecturers' perceptions that can influence their participation as lecturers in the IPE module. First of all, it was a mission assigned by the heads of their departments. Opportunities to work with other professions, learn new teaching methods, and teach students from different professions motivated them to volunteer and register to become IPE lecturers. Another reason was that they recognised the importance of IPE and IPC through their clinical practical experiences.

"Participating in teaching in this module is the first step for our staff to interact with other professions" (Focus group 1 – Pharmacist, p.4, line 139)

Many lecturers said that improving students' competencies fostered lecturers to participate in teaching in this IPE module and in the future. They also valued learning from other professionals and students in different disciplines.

"What I like the most is observing the students improve day by day... I observed clear progress in their professional knowledge as well as their teamwork skills." (Focus group 2 – Family doctor, p.3, line 127)

Advantages

Lecturers highlighted the support from international faculty development experts as a key facilitator. They found value in learning from international IPE modules and being trained in assessment tools, which enhanced their performance.

"I would like to thank the program organiser for conducting so many training sessions with the guidance of international experts." (Focus group 3 – Vietnamese traditional physician, p.27, line 757)

A strong connection between the university and the network of primary healthcare facilities was a significant facilitator in organising clinical practice and home visit activities. Moreover, practising with actual patients was reported as an opportunity for students to experience the context of IPC and improve their skills.

"We have maintained a close connection with the community health centres for a long time, making it easier to organise home visit activities." (Focus group 1 – Family doctor, p.6, line 229)

Assigning each lecturer to a single student group for the entire module facilitated feedback and evaluation. The enthusiasm of lecturers, particularly younger ones, was also noted as beneficial.

Challenges

Almost all lecturers reported that giving feedback on the interprofessional care plans was challenging. Lecturers had difficulty giving feedback to their students that was relevant to professional knowledge outside their field. Moreover, some lecturers reported a lack of experience in real-life collaboration with other professionals.

"Giving feedback on care plans is difficult. My profession is obstetrics and gynaecology, but the care plan was related to internal medicine or dentistry. I am not sure if students did it correctly or not." (Focus group 1 – Obstetrician Gynaecologist, p.3, line 116)

Other challenges were reported relevant to logistics, including preparing standardised and actual patients, scheduling, and finance. Despite being volunteers, some actual patients lacked coordination during home visits. The IPE module pilot, mostly on weekends, strained lecturers' overloaded schedules. The ten-week duration was deemed too long. Implementation costs were also significant, particularly for standardised and actual patients, video recordings for evaluation, and lecturer payments.

"It was difficult for me to arrange to participate as a lecturer when the module was organised on weekends." (Focus group 4 – Vietnamese traditional physician, p.3, line 136)

The assessment tool was difficult to use. The evaluating criteria were reported as complicated for some lecturers. Also, individual evaluation for seven students during simulation sessions was complex. Therefore, lecturers did extra evaluations via recorded video, which took much time. Some skills that were reported to be challenging to evaluate were conflict management and sharing leadership.

"The tool has too many criteria. I also felt it difficult to evaluate for seven students in a short time exactly." (Focus group 2 – Nursing, p.9, line 380)

The challenges of expanding the IPE module for students from all programs, with approximately 1500 students per year, have been discussed. This included faculty development to match the number of student groups and logistical considerations.

Suggestions

In this theme, lecturers proposed solutions to address challenges and enhance the quality of the IPE module. These included securing a commitment from volunteer patients through written contracts, improving standardised patient training, and integrating the module into formal curricula to mitigate scheduling and financial issues. Formal integration faced organisational hurdles, which might be alleviated by offering the module multiple times per semester. Essential steps included gaining support from the board and department heads and recruiting more lecturers through IPE conferences to emphasise its importance.

"The IPE module should be integrated into the university's formal curricula. To deal with a large number of students, we should organise a few IPE courses in a semester." (Focus group 3 – Dentist, p.30, line 848)

To streamline feedback on care plans, lecturers evaluated students based on plans created by relevant professional lecturers, especially in simulation sessions. Additionally, establishing

an IPC model at HueUMP is crucial to enhancing interprofessional competencies among lecturers in the university's hospital and clinic.

"The problem made me lack confidence when guiding students because I lacked practical experience in IPC. So, it would be better if a model of IPC were implemented at our university soon." (Focus group 3 – Family doctor, p.16, line 597)

Suggestions for enhancing the module's quality included allowing more time for students to familiarise themselves, clarify roles, interact with patients, and devise care plans. However, the module's duration should be shorter than ten weeks. Group formation should be based on pre-test results. Case studies for simulation should keep focus on chronic disease management, but need to be more complex, incorporating challenging communication scenarios. Lecturers also proposed solutions for assessment challenges, such as evaluating group performance, adopting a binary scoring system (pass/fail), and emphasising self- and peer assessment.

"Evaluating for the performance of the whole group is easier for lecturers, instead of evaluating seven students at the same time" (Focus group 1 – Physiotherapist, p.12, line 438)

4. DISCUSSION

This study aimed to explore lecturers' experiences while developing and implementing the first clinical IPE module in Vietnam. From the findings, four main themes, according to IPE, emerged: 'motivation', 'advantages', 'challenges', and 'suggestions'.

The results indicated that university administration support is a prerequisite to making IPE realistic, especially in making the necessary human resources available and providing funding. These were the motivations and facilitators at HueUMP, but were challenged in other universities [33].

The IPE module curriculum was designed and built based on the concept of the five building bricks of IPC, including 'acquaintance', 'making a (care) plan', 'reflection and evaluation', 'ethical issues', and 'communication' appropriate with the IPCIHC-model in the University of Antwerp [25]. Many learning activities, including case studies in simulation, clinical practice, and home visits, allowed students to take on authentic roles and contribute to the team with their professional expertise [34]. Learning content was tailored to the local healthcare context, with case study scenarios in simulations designed to be complex, often involving chronic or multimorbidity conditions, relevant to all student professions. However, this leads to challenges for lecturers in giving feedback on the care plan. This requires lecturers to have clinical experience, and involving clinical preceptors in health facilities in guiding students is necessary [35, 36].

The findings revealed that building human resources is critical, especially faculty development. To deliver good quality education, lecturers need to be trained and well-prepared in good quality to guide students from different disciplines, especially in giving feedback for interprofessional care plans [23, 37]. Support from IPE-experienced experts improved lecturer training. To boost lecturer participation and recruitment, consider reported motivation factors. Additionally, logistical challenges in organising and expanding the IPE module included preparing patients, managing resources, scheduling, and financing, which were also reported in other studies [38]. Addressing these challenges requires strong ties between the university and primary healthcare facilities for organising clinical practice and home visits. Solutions include securing volunteer patient commitments through contracts, better training for standardised patients, and integrating the IPE module into formal curricula.

Implementing the IPE module was challenging due to the new assessment tool and individual evaluation. Assessing students' interprofessional competencies through OSCE and self-reflection remains problematic and challenging [39]. Lecturers need thorough training in using assessment tools. OSCE evaluations require extensive resources, including standardised patients, lecturers, simulation settings, and logistics. To ensure objective scoring, consider re-evaluating via videotape [17]. Evaluating group performance and adopting a binary scoring system (pass/fail) could be considered [5].

Through practical experience and the results of this study, lessons could be learned to improve the quality of the IPE module and integrate the module into formal curricula. These solutions included securing a commitment from volunteer patients, thorough training for standardised patients, building complex case scenarios, offering the module multiple times per semester, and organising IPE conferences to recruit more lecturers. Additionally, lessons learned were also based on evidence by exploring students' experiences and evaluating the impact of this module [16, 17]. The module will be reviewed and adapted based on the data to fit the HueUMP educational context better, and also maintain and expand the IPE module. Case scenarios

and learning materials will be updated for all health programs. Improvements will focus on time distribution for activities like getting to know each other, role clarification, patient interaction, and care planning. Learning activities focused on assessing and rebalancing to improve competencies with low scores, such as leadership and conflict management competencies [17]. Besides, interactive learning in classrooms, simulations with standardised patients, clinical practice, and home visits in the setting of chronic disease management at the primary care level will be enhanced [16]. Consequently, together with the five steps presented in the methods session were based on the guidelines and strategies in the literature [21-23, 25], the developing, implementing and maintaining the IPE module could be presented in seven steps: (1) planning, (2) curriculum design, (3) learning content development, (4) developing human resources, (5) implementation, (6) lessons learned, and (7) adaption (Figure 1).

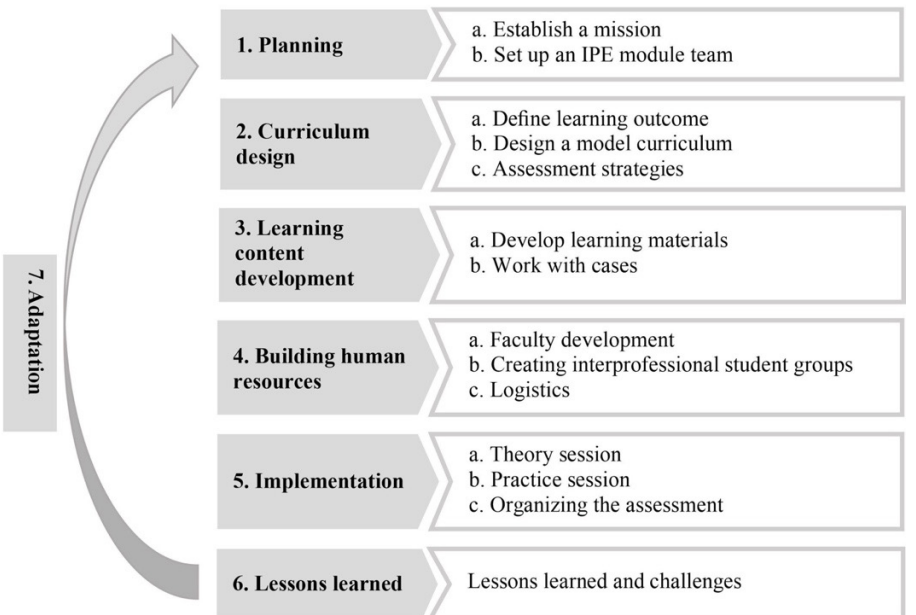

Figure 1 Strategy for developing, implementing and maintaining an IPE module

Limitations

The IPE module was developed only in the context of HueUMP, so the advantages and challenges could differ in other contexts. The seven steps can be executed differently in other curricula and countries when considering their context before implementation.

5. CONCLUSION

This study outlines the advantages, challenges, and solutions in developing the first clinical IPE module in Vietnam. University administration and IPE expert support are essential, particularly for faculty development. Major challenges included logistics like preparing patients, managing resources, scheduling, and finance. Addressing these issues requires motivating lecturer participation, strong ties with primary healthcare facilities, securing volunteer patient commitments through contracts, and integrating the IPE module into formal curricula. This study also revealed the importance of integrating and involving lecturers in developing and implementing the IPE module. The process of developing, implementing and maintaining an IPE module should follow seven consecutive steps, including (1) planning, (2) curriculum design, (3) learning content development, (4) developing human resources, (5) implementation, (6) lessons learned, and (7) adaption. Following this process could help the university to expand the IPE module for students from all disciplines. Though developed in a particular Vietnamese university context, the approach can be an inspiring model to foster the development of IPE in other Vietnamese and other countries' universities.

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