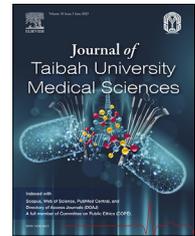




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Review Article

Conceptualisation, development and implementation of Interprofessional Education programmes: A qualitative document analysis



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المخلص

يحدث التعليم بين المهنيين عندما يتعلم اثنان أو أكثر من المهنيين الصحيين مع بعضهم البعض ومن بعضهم البعض لتحسين التعاون داخل فريق الرعاية الصحية، وهي خطوة نحو تحقيق الممارسة التعاونية بين المهنيين والتي بدورها تعزز الرعاية الصحية نتائج المرضى. تواجه العديد من مؤسسات تعليم المهن الصحية التحدي المتمثل في تطوير برامج التعليم بين المهنيين ومن الضروري توفير معلومات قائمة على الأدلة لتوجيه هذه المؤسسات في رحلتهم. قمنا بتحليل برامج التعليم المهني لستة مؤسسات تعليمية للمهن الصحية من البلدان ذات الدخل المرتفع والبلدان ذات الدخل المنخفض والمتوسط وفقا للخطوات الـ 12 لإدخال برنامج التعليم المهني في المهن الصحية. تقدم هذه الورقة قائمة خطوة بخطوة وقائمة مهام لإرشاد المعلمين في وضع تصور لبرامج التعليم بين المحترفين وتطويرها وتنفيذها ومراجعتها. نوصي بأن تقوم المؤسسات بمراجعة هذه النتائج ووضعها في سياقها وتنفيذها في برنامج التعليم المهني من الفكرة إلى المراجعة النهائية.

الكلمات المفتاحية: تحليل الوثائق؛ الممارسة التعاونية بين المهنيين؛ التعليم المهني؛ تطوير برنامج التعليم بين المهنيين

Abstract

Interprofessional Education (IPE) occurs when two or more health professionals learn with, from and about each other to improve collaboration within a healthcare

team and represents a key step towards the realisation of Interprofessional Collaborative Practice (IPCP) which, in turn, enhances the healthcare outcomes of patients. Many health professions education institutions are taking on the challenge of developing IPE programmes and it is essential to provide evidence-based information to guide these institutions in their journey. We analysed the IPE programmes of six health professions education institutions from High-Income Countries and Low- and Middle-Income Countries according to the 12 steps of IPE programme introduction for health professions. This paper provides a step-by-step guide and ‘to-do list’ to help educators to conceptualise, develop, implement and review their IPE programmes. We recommend that institutions review and contextualise these findings and implement them in their IPE programmes from conception to final review.

Keywords: Document analysis; Interprofessional collaborative practice; Interprofessional education; IPE Programme development

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Introduction

Interprofessional Education (IPE) occurs when two or more health professions students learn with, from and about each other to improve collaboration within a healthcare team and represents a key step towards the realisation of Interprofessional Collaborative Practice (IPCP) which, in turn,

enhances the healthcare outcomes of patients^{37,1} As discussed by van Diggele,² IPE has been highlighted by various health organisations as necessary to reach several health outcomes. The need to collaborate is well recorded by Buring³ and Reeves,⁴ especially when a healthcare system is increasingly complex. Roberts and Kumar⁵ expressed urgency for students and graduates to experience IPE before graduation or professional registration. In an earlier study, Jorm⁶ stated that higher education institutions have the responsibility to provide opportunities for all health professions' students to collaborate in IPE activities.

Several studies have presented IPE programmes or models implemented in learning institutions.^{7–12} In South Africa (SA), health professions education has historically been undertaken in professional silos, thus limiting the opportunities for students from various professions to learn with, from and about each other.¹³ Nevertheless, universities have started to recognise the need to implement IPE in South Africa.¹⁴ Currently, there are four universities in SA that have implemented IPE: the University of the Western Cape (UWC), the University of the Free State (UFS), the University of Witwatersrand (Wits) and the Stellenbosch University (SU).^{15–18} At North-West University (NWU), there is only one semester in which undergraduate students experience IPE through the second-semester module: *Know the world of Health* (WVGW 222). This experience is not enough for students to be adequately equipped with the required competencies for IPCP as professionals.

It is recommended that institutions developing IPE programmes learn from those that have implemented them successfully.¹⁹ Areas of learning include content, development process, facilitators, and challenges to developing and implementing IPE programmes.^{19,20} Higher Education Institutions have implemented different IPE activities so that students are well equipped with the knowledge and skills to improve healthcare systems.²³ For example, teamwork in large classes, small groups, clinical simulations in university simulation laboratories, and practice in clinical settings.² Frameworks published on IPE can guide the development of learning outcomes required to gear IPE activities.² Generally, IPE frameworks resort to common themes that govern the development of IPE activities. For example, the Interprofessional Education Collaborative's (IPEC) core competencies: interprofessional teamwork, roles and responsibilities, values and ethics, and communication are, in many cases, used as themes or as guidelines to develop themes.²¹ Beyond frameworks, IPE programmes developed and implemented by institutions provide essential information on contextual challenges and opportunities that other institutions can harness in developing and implementing new programmes.

It is, therefore, imperative for the programmes developed and implemented to be reviewed to provide a foundation for the development of other IPE programmes. This study analysed and described the conceptualisation, development, and implementation processes of IPE programmes from selected institutions globally towards the development of an IPE programme for the North-West University in South Africa⁴².

Materials and Methods

A Qualitative Document Analysis (QDA) research method was used in this study. A QDA is a systemic method to assess, evaluate and synthesise relevant information in selected documents.²² Using this methodology, the researcher interprets the meaning of the data and the data is coded for analysis.²²

This study sought to analyse IPE programmes globally, using the QDA method, to guide institutions to conceptualise, develop, implement, and review their IPE programmes. The institutional document analysis was performed by employing a document analysis manual described by Wach et al.²³ The steps for the QDA according to Wach et al.²³ include setting the inclusion criteria, document searches, articulating focus of document analysis, coding and analysis of documents, verification and data analysis. According to O'Leary,²⁴ evidence can fall into one of three major categories where analysis can be conducted: public records, personal documents and physical evidence.

Setting the inclusion criteria

The researcher used institutions that are affiliated to Interprofessional.Global, a global confederation backing engagement between organisations advocating for IPE and IPCP²⁵ globally. The reason for this was to ensure that the content was scientifically sound and internationally acceptable. We regrouped the networks on the Interprofessional.Global website which were reconceptualized into five major regions based on geographical similarities (Table 1). Out of the five regions, we selected one institution by balloting (Table 1). We also realised that Africa had 55 institutional representations in the Africa Interprofessional Education Network (AfrIPEN); therefore, we decided to select an additional institution from Africa. Institutions from High-Income Countries (HIC), such as the USA, UK and Australia (Au), as well as Low- and Middle-Income Countries (LMIC), such as India, SA and Malawi, were selected. Müller and Couper¹⁴ reported that SA is an upper-middle-income country with a record number of inequalities. Thus, comparing and matching healthcare training in institutes from other countries ranking higher and lower would provide better insight into the context of SA. The inclusion of HIC and LMIC ensured that all possible contexts were studied for relevant and rich data findings. Those selected that did not include their programmes on their web pages were replaced. All of the programmes included had data that were openly available.

Document searches

A primary search was conducted on Interprofessional.Global network institutional websites, for information on their IPE programme development, content, and implementation.

The web pages and documents uploaded on the IPE programmes from the selected institutions were retrieved for evaluation and synthesis. The document extraction process took place between January 2021 and March 2021 and any

updates or changes made on the institutional websites was understood to be outside of the study timeframe.

Articulating focus of document analysis

Data and evidence relating to IPE implementation were then extracted onto a data matrix for easy visualisation, comparison and synthesis (Table 2). The information extracted was in line with the 12 Steps of introducing IPE into Health Professions Education.²⁶

Analysis of documentation

Best fit framework analysis²⁷ was applied using the 12 steps of IPE programme introduction into health professions education outlined by El-Awaisi et al.²⁶ as the analytical framework. A predetermined set of themes was drawn from the analytical framework in best-fit synthesis. The analytical process also allowed for additional themes that emerged outside the framework to be reported.²⁷

Deductive coding used the predetermined codes based on the 12 steps of IPE programme introduction into health professions education outlined by El-Awaisi et al.²⁶ as explained earlier. The first author printed and read the data matrix several times to familiarise herself with the content, trends, similarities, and differences in the programmes extracted. The predetermined codes were then applied to the data matrix by the first author. The coding was verified by the other authors, differences were discussed, and a consensus was reached. Similar codes under each of the 12 steps of IPE programme introduction into health professions education were assimilated and described under the steps. No sub-categories were created apart from the 12 steps of IPE programme introduction into health professions education. The findings were presented iteratively under various steps in the analytical framework.²⁶ Apart from the 12 steps presented, this study described the benefits and challenges associated with the development and implementation of IPE programmes.

Verification and data analysis

The first author conducted the search and performed the extraction. The second and third authors reviewed the search and extracted documents. The analysis and writing of the scripts were undertaken in a collaborative manner. The results were examined and evaluated for relationships and variations.

Results

Benefits of IPE

We learned that IPE was beneficial because it gave students the platform to work together to provide optimal healthcare to patients.^{17,28–30} It also improved patient safety through collaboration and communication with other health professionals, and students could identify the roles and responsibilities of different professions and how they contribute to the overall well-being of a patient.^{17,28,29} IPE fostered positive working attitudes in teamwork and collaborative care whilst incorporating the delivery of safe,

in-expensive, and unified healthcare.^{17,28–31} Moreover, the evidence supported the fact that IPE strengthened the healthcare system and students were encouraged to find innovative ways to meet health goals.³⁰ IPE promoted health, the well-being of the patient, their families and the communities, enhanced health outcomes and delivered effective healthcare services, teamwork and the understanding and appreciation of professional expertise.^{17,28–32}

How were the main stakeholders brought together and who were they?

We found that the main stakeholders were from different health schools/departments of the Health Sciences faculties. Interprofessional Education and Collaborative Practice (IPECP) experts were invited based on their conference inputs. These experts contributed their expertise and institutional knowledge to the programme's development. Furthermore, frameworks that have been published on IPE programme development were consulted.

Specifically, Indiana University (IU) (USA) mentioned the president gathering Deans from different health schools to partner up for the IPE.²⁸ King's College London (KCL) (UK) noted that one person from each health school was invited to come on board with the programme.²⁹ At Monash University (Au), the Faculty of Medicine, Nursing and Health Sciences (FMNHS) agreed on the curriculum and consulted the "Collaborative Learning Outcomes 2016 Accreditation Document" as an opening point.³⁰ Monash University also sourced current IPE curricula such as the *Canadian Interprofessional Health Collaborative Competency Framework* and the *Curtin University Framework*. In addition to these frameworks, Monash university used the four-dimensional curriculum framework described by Lee et al.³³

UWC (SA) developed a programme *via* inputs from the director, deputy dean, lecturer and coordinator of the Interprofessional Education Unit (IPEU).¹⁷ A consultation with faculty members took place for the Kamuzu College of Nursing (KCN) at the University of Malawi, followed by the creation of an interprofessional team to develop the IPE case study in their programme.³¹ The faculty from the University of Malawi included experts from biosciences, statistics, reproductive health, public health and gender. Manipal Academy of Higher Education (MAHE) in India opted to partner with organisations such as the Foundation for Advancement of International Medical Education and Research (FAIMER) and stakeholders from the higher education sphere that included professors, chancellors, vices, presidents and directors.³²

How did they define and implement a definition, values and standards of IPE?

Although the IPE definitions were harnessed from different organisations by the institutions included, they were fundamentally analogous in nature. Of the six universities included in this study, four^{17,28,31,32} used the World Health Organization (WHO) definition of IPE.¹ The WHO defined IPE as when students from two or more professions learn from, with and about each other for effective collaboration

Table 1: Reconceptualization of the Interprofessional. Global networks.

Networks	Number of institutions reported on the Interprofessional. Global website	Number of institutions randomly selected	
Canada, South and Central America and Caribbean	13	1	United States of America
United Kingdom, Nordic Network of Europe and German speaking countries	19	1	United Kingdom
Australasia	4	1	Australia
Africa	55	2	South Africa and Malawi
India	2	1	India

and enhanced health outcomes.¹ One university²⁹ followed the definition of the Centre for the Advancement of Interprofessional Education (CAIPE). CAIPE defined IPE as occurring through occasions when two or more professions learn from, with and about each other for improvements in collaboration and quality treatment.³⁴ Another study,³⁰ drew from the standard IPE definition and formulated their own definition. In terms of values and standards, it was identified that IPEC competencies were profoundly used as overarching principles and to guide the development of IPE programmes.

What outcomes were formulated?

Outcomes for faculty in terms of development and implementation, together with outcomes for students during IPE, were identified.

IU required the students to collaborate with others to facilitate common respect and values; use their expertise and those of other professions to facilitate the healthcare needs of a patient and promote health; communicate with patients, families, communities, and professionals in health and other fields responsively and responsibly to support teamwork in promoting and maintaining health and preventing and treating disease; apply relationship-building standards of team dynamics to act productively in teams to strategize, offer, and examine patient care and health programmes; and regulations that are safe, timely, of quality and value, and are fair.

KCL required students to work collaboratively in teams for patient-centred care; understand the roles and responsibilities of other professions and how they contribute to the overall care of individuals, families and communities; produce expert care and treatment in a holistic context, including human factors; improve patient safety through enhanced communication and collaboration between professions who are responsible for a common patient.

Monash University determined the learning outcomes in four primary categories: person-centred care, role understanding, interprofessional communication and collaboration within and across teams. The outcome for *person-centred care* required students to seek out, integrate and value, as a partner, the input and engagement of the person/family/community. For *role understanding*, students had to understand their roles and the roles of others. Under *inter-professional communication*, students from different professions were required to communicate in a collaborative, receptive and considerate manner. For *collaboration within*

and across teams, students were required to understand and apply team dynamics and group processes standards.

The UWC required students to explain their expertise to other professions; identify limitations with roles, responsibilities and competence; identify and respect other professions' competencies and functions, collaborate for change, and provide conflict resolutions to provide care and treatment; work with others to assess, plan, and provide; collaborate to examine, strategize, offer and analyse patient care; mitigate differences, misunderstandings and shortfalls in other professions; and participate in case conferences and meetings.

The University of Malawi required students to show knowledge of different components and respect for human rights; create new promotion plans for reproductive healthcare; show knowledge and understanding of various management issues impacting the delivery of healthcare; advocate for the health of individuals, families and groups through activities on community development using support, commission, education and guidance, and perform research to advance reproductive healthcare.

Apart from student outcomes, both Monash University and MAHE indicated outcomes that were in place for faculty. The faculty at Monash University was required to determine a predominant education framework for outcomes and practice the three levels, i.e., novice, intermediate and entry-to-practice; back interprofessional learning in profession-specific curriculum; back educational research in the strategy, distribution and valuation of the Collaborative Care Curriculum and direct the development of resources for the outcomes. MAHE required the faculty to improve knowledge of Interprofessional Education and Practice (IPEP); serve in joint ventures when it comes to the health requirements of the community, and create faculty that will champion IPE.

Analysis of the outcomes from each university was undertaken and a consolidated outcomes list was formed (Table 3). The researcher merged common outcomes based on the findings under Table 2 sub-heading 'what outcomes were formulated?'

How was the participation and selection of students and faculty undertaken?

The stakeholders from the different universities were gathered from other health schools or were invited to partner in the venture. Monash University, for instance, included

Table 2: Data matrix – data comparison.

	Indiana University – United States of America	King’s College London – United Kingdom	Monash University – Australia	University of the Western Cape – South Africa	University of Malawi – Malawi	Manipal Academy of Higher Education – India
How were the main stakeholders brought together and who were they?	Assembled from different health schools.	One person from each health school.	FMNHS.	Director, deputy dean, lecturer, field coordinator who were part of the IPEU.	Consultation with faculty members who were experts in biosciences, statistics, reproductive health, public health, and gender followed by setting up an interprofessional team to develop the curriculum.	Partnering with Foundation for Advancement of International Medical Education and Research (FAIMER) and stakeholders from the higher education e.g., professors, chancellors, vice-presidents, presidents, and directors.
How did they define and implement a definition, values and standards of IPE?	World Health Organization (WHO) definition and Interprofessional Education and Collaborative (IPEC) competencies.	Centre for the Advancement of Interprofessional Education (CAIPE) definition.	Own definition with IPEC competencies.	WHO definition.	WHO definition.	WHO definition, IPEC competencies and emphasis on the development of leadership competencies for Interprofessional Practice (IPP).
What outcomes were formulated?	Collaborate with others to facilitate common respect and values. Use own expertise and those of other professions to facilitate the healthcare needs of a patient and promote health. Communicate with patients, families, communities, and professionals in health and other fields in a responsive and responsible manner that supports a team approach to promoting and maintaining health and preventing and treating disease. Apply relationship-building standards of	Work collaboratively in teams for patient-centred care. Understand the roles and responsibilities of other professions and how they contribute to the overall care of individuals, families, and communities. Produce expert care and treatment in a holistic context, including human factors. Improve patient safety through improved communication and collaboration between professions who are responsible for a common patient.	Learning outcomes based on person-centred care, role understanding, interprofessional communication and collaboration within and across teams.	Explain the expertise to other professions. Identify limitations in relation to role, responsibilities, and competence. Identify and respect the competencies and roles of other professions. Collaborate for change and provide conflict resolutions to provide care and treatment. Work with others to assess, plan, provide and analyse care. Collaborate to examine, strategize, offer, and analyse patient care. Mitigate differences, misunderstandings, and shortfalls in other professions. Indulge in case	Show knowledge on different components and respect for human rights; create new promotion plans for reproductive healthcare; show knowledge and understanding of various management issues impacting the delivery of healthcare; advocate for the health of individuals, families, and groups through activities on community development through support, commission, education and guidance; perform research to advance reproductive healthcare.	Improve faculty understanding of interprofessional education and practice. Implement collaborative projects in Interprofessional Education relevant to the health needs of the community. Develop faculty who lead in the practice of Interprofessional Education.

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Table 2 (continued)

	Indiana University – United States of America	King's College London – United Kingdom	Monash University – Australia	University of the Western Cape – South Africa	University of Malawi – Malawi	Manipal Academy of Higher Education – India
How was the participation and selection of students and faculty done?	team dynamics to act productively in teams to strategize, offer, and examine patient care and health programmes and regulations that are safe, timely, of quality and value, and are fair. Curriculum part of the studies.	Part of health curriculum.	The health professions represented in the faculty were medicine, midwifery, nursing, nutrition and dietetics, occupational therapy, paramedicine, pharmacy, physiotherapy, psychology, radiography, radiation therapy, ultrasound, and social work. Thus, the course required the participation of these professions.	conferences, meetings and so on. Embark on interdependent relations with other professions.	Students and faculty who were part of the reproductive health programme participated.	The selection criteria were as follows: Be associated with a higher education institution. Have a graduate or professional degree (e.g., medicine, dentistry, alternative medicine, physiotherapy, occupational therapy, nursing, nutrition, veterinary sciences, agricultural sciences, engineering, humanities, law, social sciences, or management). Have at least five years' work experience as a faculty member after completing formal academic training. Have institutional endorsement.
Which themes were selected?	IPEC competencies: Roles and responsibilities; values and ethics; communication; and teams and teamwork through the phases of exposure, immersion and entry-to-practice.	Year 1: promoting patient safety, patient-centred communication within a team approach. Year 2: Interprofessional pain education. Year 3: Interprofessional learning in practice. Year 4: clinical simulation and keeping	Person-centred care; Role understanding; interprofessional communication; collaboration within and across teams. Real world problems, e.g., safe use of medicine.	Primary healthcare; interdisciplinary health promotion; shared research module; interprofessional world café; interprofessional supervision.	Theoretical, clinical and research model. biosciences (advanced physiology/pharmacology), conceptual and theoretical frameworks/models, leadership and management, bioethics, education for health	Emphasizes development of leadership competencies for IPP. It provides opportunities for interaction with recognized leaders in IPP, collaboration with peers, and implementation of

		patients safe from medication errors.			professionals, research methods and statistics, maternal and neonatal care, men's and women's reproductive health, and integrated reproductive health practicum.	interprofessional projects.
How was collaborating in case and activity design encouraged and how was mixing up the learning methods done?	The Exposure phase focused on the Interprofessional Education and Collaborative competencies in an online setting lasting between 90 and 120 min. In the immersion phase, focus was placed on application of expertise with the use of simulated or real patients. The entry-to-practice phase put students in professional settings so that they had direct experiences.	Work collaboratively; devise a pain management plan; identify roles and responsibilities of different professions; teamwork in simulations; learn medicine management in a team through digital resources and workshops; case study with virtual characters.	Facilitator guide; small group learning; discussion and collaboration; active learning tasks; facilitated reflections. Simulated patient; bag of medicines; quizzes; case studies.	Students engaged with each other and stakeholders to deliver interprofessional services in rural and urban communities as well as at primary, secondary, and tertiary clinical sites.	Theoretical component: Each profession conducted a profession-specific seminar so students could evaluate philosophical approaches of knowledge development and care in their disciplines. Clinical component: students allocated to reproductive health units/wards in teams, other clinical experiences related to care of patients with STI. Research component: students worked individually by choosing a problem on a particular area but attended research seminars together for the purpose of sharing topics and approaches to research projects.	Guidance was through the involvement of Foundation for Advancement of International Medical Education and Research (FAIMER), Philadelphia together with the support of the university leadership and team.
What levels and stages were determined?	Throughout their learning.	Undergraduate and graduate level.	Novice (First year of an undergraduate degree) Intermediate (Second or Third year of an undergraduate degree, or First year of a graduate entry) Entry to practice (Final year).	First year to final year.	Master of Sciences (MSc) coursework and dissertation (2 years).	The fellowship includes two annual one-week residential sessions and two 11-month online learning sessions following the residential sessions.
How was the learning facilitated?	Facilitators to guide the students.	Facilitators to guide the students.	Facilitators to guide the students.	Facilitators and student supervisors.	Faculty teaching and guest lecturers during theoretical component. Clinical components	The fellows were provided one-to-one mentorship and their role was to facilitate,

(continued on next page)

Table 2 (continued)

	Indiana University – United States of America	King's College London – United Kingdom	Monash University – Australia	University of the Western Cape – South Africa	University of Malawi – Malawi	Manipal Academy of Higher Education – India
How were the expectations and experiences of students raised?	Prepare individually. Learning objectives aligned to competencies. Active learning with team-building experiences. Assessments and evaluations followed by reflections and debriefings.	Appreciation in learning with a multi-disciplinary team with the understanding that it could improve patient care. Each student was individually responsible and for the team. Knowing the importance of working with other health professionals and how beneficial a multi-disciplinary team could be to enhancing patient care. Inquiry-based learning promoted collaboration, directed learning and offered reflection on learning.	Challenging and interactive learning. Brainstorming solutions to complex issues, that required the engagement of multiple disciplines.	Shaped the education and training of students for a strong, flexible, and collaborative health workforce, that was able to confront the highly complex health challenges of today.	included multidisciplinary ward teaching rounds. No mention.	guide, supervise and role-model. They were responsible for monitoring the progress and completion. They learned sequentially and progressively which facilitated skills. Self-directed learning was established together with collaborative learning.
How was the feedback assessed and utilised?	Formative assessment, competency-based evaluation. Reflection, debriefing.	Year 1: presentation; Year 2: online questionnaire, feedback posted on website; Year 3: concept map; Year 4: presentation.	Evaluation survey and reflections. Student and staff evaluation. Share evaluation feedback with the education team and make necessary curriculum changes.	Reflections.	Theoretical components; Assessment through examinations, seminar presentations and projects. The clinical component was assessed through clinical portfolios. The students provided care to patients with various reproductive health conditions and wrote up according to guidelines. The students were graded based on written and oral presentations.	A modified form of Objective Structured Clinical Examination (OSCE) – Interprofessional Team Objective Structured Clinical Examination (ITOSCE), reflections, clinical exams, questionnaires.
	No community evaluation.	No community evaluation.	No mention.	No mention.	No mention.	No community evaluation.

How was the intervention evaluated?	Publications, conferences and networks.	Conferences and networks.	Workshops and presentation to broader group.	Networks, conferences, universities.	Dissertation and presentation.	Conferences and organisations or networks.
How were the experiences shared?	Preparing students to fulfil requirements.	Disagreements and conflicts.	Logistics (time, timetable, and space), staff learning material.	Staff, misunderstandings, shortcoming of professions and tolerating differences.	Some faculty members expressed concern that the college was departing from its core mandate of training nurses and midwives by initiating an IPE programme that would include other cadres such as doctors and clinical officers.	Logistic, developing curricula for all levels, faculty training, suitable assessment, buy-in, accreditation.
Challenges	Creating meaningful online experiences for students. Implementation due to Covid-19.					

academic and clinical staff from nursing, pharmacy and medicine to design and deliver the programme. Having IPE become part of the health curriculum was another way to include staff and students.

Which themes were selected?

Although the underlining themes were interprofessional collaboration, communication, patient safety, and teamwork, each institution was specific in its content and mode of delivery of the IPE programme. This study identified and consolidated themes from the six institutions, including lived experiences – clinical simulations, case studies of patients with complex needs; patient safety, medical errors; inter-professional communication and IPEC competencies; primary healthcare – diagnosis, treatment and support; and interprofessional health promotion and advocacy.

How was collaborating in case and activity design encouraged and how was mixing up the learning methods undertaken?

In IU, developmental sessions were offered where faculty were initially trained in design delivery, the evaluation of IPE and to develop and enhance their skills. The sessions were focused on different collaborative topics to foster practice around patient-centred care. At KCL, faculty met to answer questions on the programme by paying close attention to the teaching, the type of activities and how they impact knowledge and skills, and the assessment thereof. KCL was more explicit in the interprofessional activities and learning methods. KCL required students to develop a pain management plan, use digital resources, have workshops and be issued with virtual case studies. At Monash University, a 45-min module was designed to assist staff in designing and delivering interfaculty activities. Furthermore, Monash University used facilitator guides and provided an atmosphere for students to undergo small group learning. In addition to this, simulated patients were made available along with quizzes, case studies and innovative activities. At the UWC, academic staff, currently part of the IPEU, were involved in developing, implementing, and coordinating the IPE curriculum and convened for its ongoing development.

At KCN, the faculty dean oversaw academic matters. IPE literature was reviewed, and consultation took place with staff involved in reproductive health and interviewing students. Two faculty members from midwifery then developed the Interprofessional Master of Sciences (MSc) in Reproductive Health programme. Three components were then established: theoretical, clinical and research. In the theoretical component, the health professions steered profession-specific seminars so that the rest of the professions could evaluate philosophical aspects. The philosophies were then scrutinised for similarities and variations and how they could be utilised for quality care. For the clinical component, students were assigned to reproductive health wards or allocated patients with Sexually Transmitted Infections (STIs); this was undertaken in teams of three or four. For the research component, students worked individually by choosing a problem related to a specific topic and then attended research seminars to share their

findings and views. MAHE designed the programme through the partnership, leadership, expertise and support of FAIMER. The faculty in charge were drawn from different disciplines who championed innovative education. MAHE stressed the advancement of leadership competencies for Interprofessional Practice (IPP), offering prospects for collaboration with recognised leaders in IPP, collaboration with associates, and interprofessional project implementation.

What levels and stages were determined?

Most universities offered IPE in their first to their final years. Only two universities^{31,32} from the LMIC were found to have IPE in their postgraduate levels.

How was the learning facilitated?

Learning was facilitated by facilitators/lecturers, guest lecturers and student supervisors. Facilitators were commonly seen as enablers rather than directly influencing the learning and allowing the students to take over. For one of the universities that offered IPE at a postgraduate level, mentorship was provided to guide, supervise, model, and monitor progress.

How were the expectations and experiences of students raised?

At IU, the IPE curriculum was presented throughout student learning and provided students with the opportunity to participate actively and collaborate effectively.²⁸ Similarly, at UWC, IPEU was developed to offer opportunities for IPECP.¹⁷ At Monash University, on the other hand, the curriculum was structured on a continuum basis so that the learning needs of programmes were targeted and students were prepared to meet the collaborative needs of patients.³⁰ Students were given opportunities to interact with other

professions on health-related issues to come up with solutions collaboratively.^{28–30} Students had to take responsibility as individuals and for what the team achieved, which followed reflections on the learning whilst understanding the benefits of a collaborative approach to patient care.^{28,29} Challenging students was one technique to keep them motivated as students needed to brainstorm solutions by accounting for complex matters collaboratively.^{17,30}

How was the feedback assessed and utilised?

Students were graded by examinations, clinical examinations, reflections and oral presentations. At IU, students were assessed through formative assessment, competency-based evaluations, reflections and debriefing.²⁸ KCL used three different forms in the different year levels. In year 1, students had to give presentations; in year 2, students completed online questionnaires and feedback was posted on the website; in year 3, a concept map was completed and in year 4, a presentation was given.²⁹ Monash University used surveys and reflections by evaluating students and staff and by sharing feedback with the education team to make necessary changes to the curriculum.³⁰ UWC mentioned reflections as part of assessments,¹⁷ whereas the University of Malawi incorporated different assessment tools and methods depending on the component they wished to evaluate. Thus, for the theoretical components, assessment was undertaken through examinations, seminar presentations and projects; for the clinical component, assessment was undertaken through clinical portfolios, and students provided care to patients with various reproductive health conditions and write up according to guidelines.³¹ The students were then graded based on written and oral presentations.³¹ MAHE used the Interprofessional Team Objective Structured Clinical Examination (ITOSCE) with reflections, clinical exams and questionnaires.³²

How was the intervention evaluated?

Overall, none of the universities analysed mentioned evaluating the effect of the IPE intervention on the community. Therefore, no data could be gathered for the intervention or how it was evaluated.

How were the experiences shared?

The IPE programme experiences of students were shared on many different platforms and in many ways. Most commonly, experiences were shared at conferences,^{17,28,29,32} with networks^{17,28,29,32} and organisations.^{17,32} The media incorporated included dissertations,³¹ publications,²⁸ workshops³⁰ and presentations.^{30,31}

Challenges encountered

Challenges were not a component of the steps described by El-Awaisi et al.²⁶ However, ‘challenges’ were another theme identified whilst conducting the analysis. Logistic challenges,^{17,30,32} such as lack of time, timetabling issues and limited space to carry out IPE were evident. Staff

Table 3: Consolidated outcomes from different universities.

Consolidated outcomes from qualitative document analysis

- Work together in interprofessional teams for optimal patient-centred care
- Awareness of the diverse roles and responsibilities of the different health professions and respecting professional expertise
- Adopt the Interprofessional Education and Collaborative competencies in healthcare whilst following ethical principles
- Identify barriers to interprofessional collaboration and how to overcome them so that treatment and care can be provided
- Overcome arising disagreements and conflicts through a team management plan
- Create interprofessional healthcare plans that are patient-specific and innovative in approach
- Support and employ interprofessional collaborative care at the individual and community level

challenges^{17,30} were also stated as it became difficult as they did not want to come on board or agree to IPE benefits in health curricula. Having appropriate learning material³⁰ where aspects of all health schools were merged was a challenge. IU²⁸ found that implementing IPE during the Coronavirus (Covid-19) pandemic was a challenge. Other challenges include disagreements and conflicts²⁹ amongst team members, misunderstandings, professional shortcomings, and tolerating differences.¹⁷ The University of Malawi³¹ identified faculty members expressing apprehension as accommodating IPE meant that there had to be a shift from their school's core mandate. Buy-in³² from the included institutes was crucial so that there was support in developing and implementing IPE. Another challenge was that developing curricula to be implemented for all year levels³² was a problem and this was factored around logistical challenges. Training the faculty³² was a challenge too, as facilitators needed to be guided through the process of IPE. Suitable assessments³² were required to measure the programme and to accredit the programme was necessary so that there was another reason to support participation in IPE.

Discussion

Interprofessional education programmes are evolving across the world and especially in Africa. AfrIPEN is advocating and building the capacity of health science educators on the continent to develop and implement IPE programmes. This paper provides an analysis of how six, globally recognised institutions introduced IPE programmes into their health science faculties, using the 12 steps of IPE programme introduction into health professions education outlined by El-Awaisi et al.²⁶

We found that although getting the stakeholders together to participate in the primary development of the programme varied from institution to institution, the underlining principle was that it should be done in a way that all stakeholders felt involved and contributed their expertise to the programme. Branch-Mays et al.,³⁵ Teodorczuk et al.,³⁵ Herrera et al.,⁹ and Prast et al.³⁶ resonated with the involvement of all stakeholders who needed to accept and contribute to the development and implementation of the IPE programme. Key stakeholders were the university's leadership, whose buy-in was necessary for the programme's initiation, as reported in many studies.^{26,36,38,39}

We found that the benefits reported in the evaluated programmes had many commonalities and peculiarities, depending on the programme's nature, level, and scope. The WHO¹ *Framework for Action on Interprofessional Education & Collaborative Practice* emphasised that the needs of a health systems were greatly influenced by the nature of the IPE programme; hence IPE programmes in different contexts must differ. The common benefits reported included improved collaboration, improved attitudes towards other healthcare team members and reduced medical errors which also fell within the core competencies of the IPE reported in the WHO¹ *Framework*. Furthermore, IPE also challenged students to think critically and engage in high-level problem solving.⁴⁰

This study found that the WHO definition for IPE was the most used and that the IPEC competencies were fundamental

in guiding the development of the programmes. It could be deduced that the institutions included sought to make their programmes internationally accepted. Furthermore, the common themes we identified from the programmes could be classified into theory, practice and research. Frantz and Rhoda⁴¹ supported the implementation of the three categories.

In terms of case and activity design, bringing together stakeholders and facilitators to work on the programme was an important step. Innovative learning strategies were necessary to stimulate student thinking and support collaborative practice. When comparing the different IPE programmes, it was quite evident that the overarching aim of facilitating an environment that harboured IPE for health professions' students was necessary so that the collaborative healthcare needs of patients and populations were met. Additionally, importance was placed on enhancing the IPE programmes regularly. Differences amongst the universities were found in terms of the learning methods used and how students were trained for the world of work. Furthermore, intervention in terms of community evaluations was a scarcity, whereas student and staff evaluations were given preference.

Limitations

This paper served as a guide for educators; however, much attention was placed on development and implementation without considering all of the challenges of IPE programme development and implementation. Before considering developing the programme, faculty and potential stakeholders need to be consulted for input. Although evidence was gathered from different institutions from the HIC and LMIC, data on effective IPE programmes needs to be contextualised so that students can be trained in the immediate healthcare needs of the community. We determined that developing an IPE programme for an institution meant that evidence needed to be collected from other local institutions rather than selecting specific HIC and LMIC institutions. However, due to the limited number of publications in the local context, feasible data findings became a challenge.

Conclusion

Interprofessional education is instrumental in making health professions' students competent IPCP practitioners of the future. Many institutions are taking on the challenge of developing IPE programmes and it is essential to provide evidence-based information to guide these institutions in their journey. This paper provides a step-by-step guide and 'to-do list' to facilitate educators in the process of conceptualising, developing, implementing and reviewing their IPE programmes. We recommend institutions review and contextualise these findings and then implement them in their IPE programme conceptualisation, development, implementation and review.

Recommendations

Based on the findings on processes and experiences of introducing IPE programmes into the health sciences curricula by the institutions included in this study, we recommend:

- Gaining appropriate buy-in from the Faculty, University leadership and all other departments/professions is essential for developing and implementing an IPE programme.
- It is critical for the staff involved in the IPE programme conceptualisation, development and implementation steps to be trained before the programme.
- To realise its full potential, IPE should be introduced in the first academic year.
- Making the IPE compulsory encourages staff and student participation.
- Seeking support or adapting IPE programmes from institutions that have successfully implemented IPE provides an excellent foundation for developing and implementing IPE programmes.
- Conducting a Strengths, Weaknesses, Opportunities and Threats (SWOT) analysis based on experiences from other institutions will help an institution to identify its potential challenges and opportunities available to overcome them.

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Conflict of interest

The authors have no conflict of interest to declare.

Ethical approval

This study received ethical approval from the North-West University Human Research Ethics Committee (NWU-00430-20-A1).

Consent

This study did not involve any human participants and therefore, consent was not required.

Authors contributions

FD conceived and designed the study as a PhD student under the supervision of CDC and YH. FD, CDC, and YH analysed the data. FD drafted the manuscript under the guidance of CDC and YH. CDC and YH critically reviewed the draft manuscript and made significant inputs. All authors have critically reviewed and approved the final draft and are responsible for the content and similarity index of the manuscript.

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