Original Article

How to Develop an Interprofessional Education Programme: A Narrative Review of Empirical Applications

Amy Bening, PhD
Tutor, Centre for Health Professions Education, Faculty of Health Sciences, North-West University, Potchefstroom, South Africa

Victor Mogre, PhD
Professor, Health Professions Education and Innovative Learning, University for Development Studies, Tamale, Ghana

Yolande Hayman, PhD
Professor, Centre for Health Professions Education, Faculty of Health Sciences, North-West University, Potchefstroom, South Africa

Christmal Dela Christmals, PhD
Professor, Centre for Health Professions Education, Faculty of Health Sciences, North-West University, Potchefstroom, South Africa

Correspondence: Prof Christmal Dela Christmals; Centre for Health Professions Education, Faculty of Health Sciences, North-West University, 11 Hoffman Street, Potchefstroom, South Africa Email: Christmal.chrstmals@nwu.ac.za

Abstract
Background: To produce competent healthcare professionals capable of providing comprehensive person-centred care in a multidisciplinary team requires interprofessional education which ensures students from various health professions groups learn from with and about each other. While some countries are earning the dividends of fully implemented IPE programmes in their health professions education systems, others, especially in the African region, are struggling to develop and implement IPE due to some contextual factor. Development and implementation of IPE programmes are cumbersome and requires consensus from multiple stakeholders to guide institutions to develop IPE programmes.
Aim: This review synthesized empirical evidence on the development and implementation of interprofessional education programmes globally.
Methodology: Nine out of the 599 studies retrieved through computerised database search and hand search were included and key findings extracted for and synthesized narratively.
Findings: The structure of the programmes varies from institution to institution due to the contextual nuances. While some were implemented over hours, weeks, years, others were implemented throughout the pre-registration training programme duration, albeit with shorter periods within each academic year. Most IPE programmes are implemented from the first year of health professions student enrolment. IPE programme development is a multi-stakeholder process with technical inputs from trained and experienced academics in addition to student voices.
Conclusion: Although evidence suggests that it is beneficial to make IPE programmes compulsory, or credit bearing and most importantly, use existing modules or courses rather than adding to the workload of staff and students, the institutional context must guide the choices made during the development and implementation processes.

Keywords: interprofessional education; interprofessional collaborative practice; health professions education; competency-based curriculum; programme development; narrative synthesis

Background

Evidence shows that about 48% of the 2.8 million preventable deaths are caused by poor health service provision (Kruk et al., 2018). Quality healthcare and competent healthcare providers are interrelated. To produce competent healthcare professionals capable of providing comprehensive person-centred care in a multidisciplinary team requires more than the traditional siloed health

professions education. As such, the World Health Organisation advocates the integration of Interprofessional Education (IPE) into health professions education curricula to allow health professions students to develop Interprofessional Collaborative Practice (IPCP) competencies (Shakhman et al., 2020; World Health Organization, 2010). Thus, IPE, which allows two or more health professions students to learn from, with and about each other, is taking centre stage in health professions education in the 21st century (Rachman et al., 2022). The interprofessional approach to education has long been praised due to its multiple benefits (WHO, 2010). Among the benefits is that IPE ensures that health professionals from different health disciplines provide comprehensive services by working with patients/clients, their families, caregivers, and their communities to deliver the highest quality of care across settings (WHO, 2010). High-quality care is the shared primary commitment of all health professionals. The scope of health care mandates that health professionals work collaboratively and with each other to ensure that this shared commitment is achieved. Thus, IPE, which will facilitate students' understanding and appreciation of the roles and contributions of each profession to foster the development of a shared commitment to achieving quality patient care, should be promoted (WHO, 2010). Hence, for healthcare professionals to be prepared to function effectively in teams and be collaborative-ready, the students should be exposed to a teaching and learning environment that promotes teamwork and collaboration. Undergraduate health profession students need to be exposed to some educational experience (IPE setting during their student years) to create a unique experience for the student and prepare them for collaborative roles in the healthcare system (Thistlethwaite, 2015a).

In a typical IPE setting, students acquire competencies across teamwork, communication skills, roles and responsibilities, critical reflection and ethical practice domains. Those competencies improve their collaborative skills so that upon graduation, they can function in collaborative teams in health care delivery, subsequently improving patient outcomes (WHO, 2010). The main goal of IPE is to foster IPCP among health professionals, which will, in turn, improve patient outcomes (WHO, 2010). Various health professions students are combined into an IPE team, which may include traditional health professionals such as physicians, nurses, dentists, laboratory staff, pharmacists, occupational therapists, and physiotherapists (Gierach, 2014; Keller, 2024; Wei Qi et al., 2020). Other social care professionals are sometimes involved depending on the programme's aim (Martin et al., 2023). By definition, having just two of the professional groups is enough (Haresaku et al., 2024), but having all the professional groups that will constitute the interprofessional collaborative care team for future practice is desirable. Several studies have found that IPE improves the acquisition of practical competencies and positive behavioural changes among pre-registration health professions students. For example, several systematic reviews (Guraya and Barr, 2018; Sezgin and Bektas, 2023; Vuurberg et al., 2019; Zenani et al., 2023) found that IPE promotes learning, teamwork and positive attitudinal change among pre-clinical health professions students. Other empirical studies (Filies et al., 2016; Yu et al., 2020) also found IPE effective in promoting student engagement, learning experiences and satisfaction. While some countries are earning the dividends of fully implemented IPE programmes in their health professions education systems, others, especially in the African region, are struggling to develop and implement IPE programmes- various countries are at different levels of IPE development and implementation (Delawala et al., 2022a, 2022b). As such, establishing the Africa Interprofessional Education Network (AfrIPEN) created a community of practice for capacity building to support institutions and countries in setting up interprofessional programmes. This review sought to explore the empirical development and implementation of IPE programmes.

Development of IPE programmes: Despite the resource capacity of the developed world, they still face challenges such as difficulties in curriculum development, leadership and lukewarm attitudes of some stakeholders towards the implementation of IPE programmes (Reeves et al., 2013; Thistlethwaite, 2015b). These challenges and resource and knowledge deficits are experienced in the developing world (Delawala et al., 2022a; Mohamed et al., 2024;

Reeves et al., 2013). Although many studies (Delawala et al., 2022a; Kraemer and Kahanov, 2014; Oandasan and Reeves, 2005; Reeves et al., 2012) have outlined the development process of the IPE programme, these were not empirical applications, therefore, do not have the experience element to guide future development. These processes involve the gathering of stakeholders, defining concepts and setting programme objectives, forming the curriculum team, and developing the curriculum using various methods, including embedding the programme into an existing course/module or creating a new course/module for the programme (Delawala et al., 2022a; Haresaku et al., 2024; Oandasan and Reeves, 2005; Reeves et al., 2012; Thistlethwaite, 2015b).

Methodology

In line with the philosophical foundations of the research, the researchers used a multi-method methodological approach that works best to solve the research problem and is appropriate for answering the research question, 'How can an IPE programme be developed for the training of health professional graduates of a university in Ghana'? A narrative literature review was carried out to answer the research question. A narrative or traditional literature review is a comprehensive, critical, and objective analysis of the current knowledge on a topic. It presents a broad perspective on a topic and often describes the history or development of a problem or its management (Williams, 2018). Thus, articles were reviewed to synthesise how institutions have developed and implemented IPE programmes based on their context.

The narrative review in this study is presented under the following headings: review question, search strategy and inclusion/exclusion, data extraction, storage and presentation of results.

Ethical considerations: Ethical approval was obtained from the North-West University Health Research Ethics Committee (NWU-00038-23-A1) and the Ghana Health Service Ethics Review Committee (GHS-ERC:015/07/23).

Review Question: The research question that was addressed was, *"How are IPE programmes developed and implemented for undergraduate health professions students?'*

Search Strategy: A basic computerised search was conducted in EBSCOhost, Scopus, PubMed, and ProQuest using the search words: Interprofessional education, OR Interprofessional collaboration, AND programme OR Course OR Module. Backward and forward searches were conducted on the full-text articles included.

Inclusion criteria

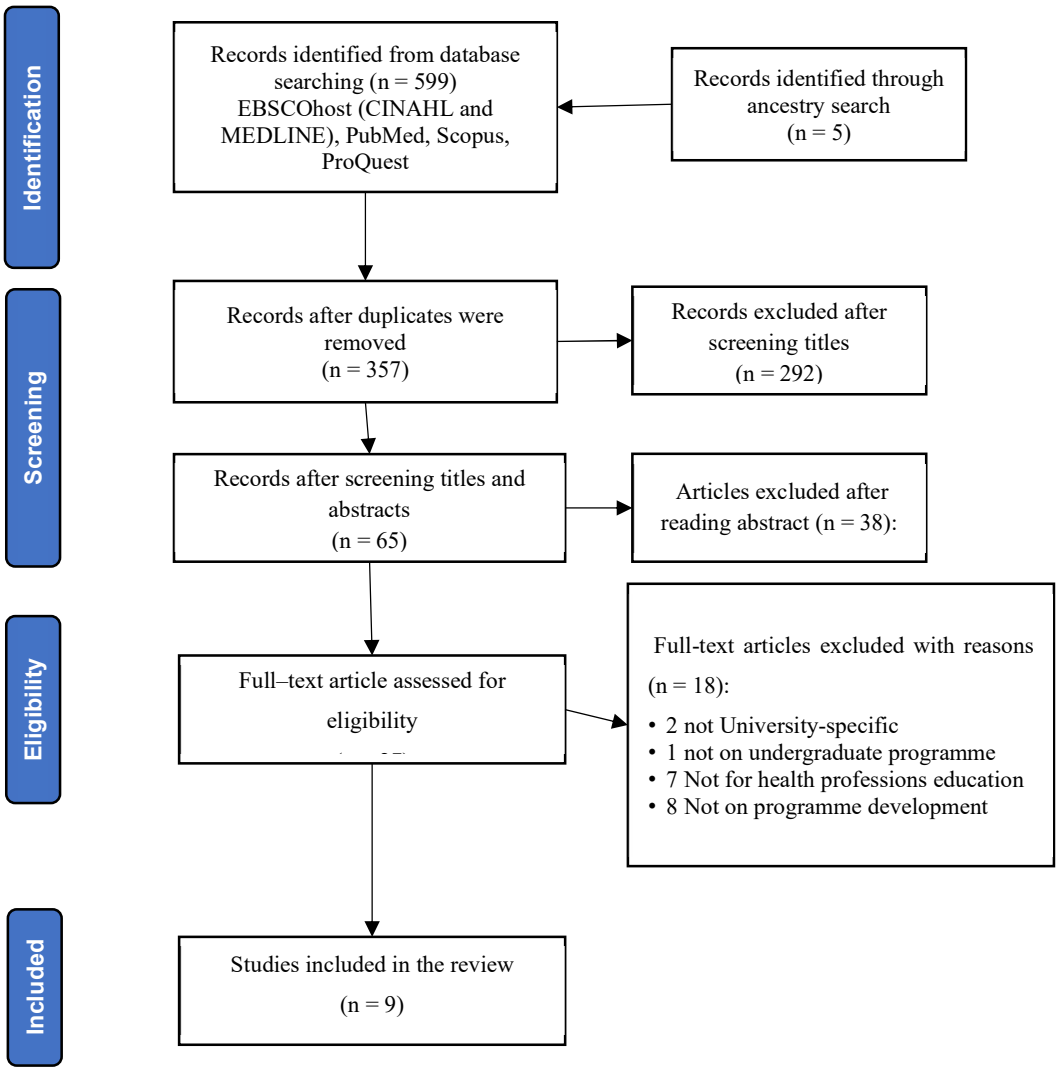
- Literature published in the English Language or has an English translation. The outcomes of literature reviews conducted in English have been proven scientifically sound, of better standards and design and are more complete (Nussbaumer-Streit et al., 2020).
- Studies with a focus on health professional education and interprofessional collaboration

Exclusion criteria: If the full text of the paper is not accessible, the literature is excluded from the study.

Data Extraction, Storage and Organisation: A data extraction form was developed by the first author and revised by the others in line with the objective of this study and used to extract data from the studies included. Information such as author, year of publication, setting/country, methodology/ IPE development process, description of the IPE programme and implementation process were extracted. Details of the data extraction are shown in Table 1.

Data Analysis: Narrative synthesis, an inductive process that uses words and textual descriptions to summarise and give meaning to qualitative findings, was used to synthesise the data extracted onto the data extraction sheet. Each study was carefully evaluated for similarities and differences in methodology and key constructs or themes (Popay et al., 2006). In this study, the findings extracted from the data matrix were compared and summarised into a meaningful write-up. This study explored and discussed how IPE programmes are developed and implemented.

Figure 1: Search and inclusion process



Results

A total of 599 articles were retrieved from Pub-Med, ProQuest, EBSCOhost (CINAHL and MEDLINE) and Scopus during the search. After the removal of all duplicates and irrelevant articles from the data, a total of 357 articles were considered. From the initial title screen, 292 studies were excluded because they focused on something other than IPE development, undergraduate students or health professional education. Thirty-eight (38) of the remaining 65 papers were further excluded after their abstract were read thoroughly. AB and CDC retrieved and reviewed the full texts of the 27 papers remaining after the abstract reading. Consensus was reached on including 9 papers for data extraction (see Figure 1). The data extracted has been analysed and described under the following headings: the global distribution of IPE programme development and the implementation of the IPE programmes.

A global distribution of IPE programme development: The evidence suggests that institutions in the Western world are more advanced in integrating IPE into their curricula

than in Africa and other developing worlds. Eight (8) of the ten papers included are from the Western world, while only two were recorded in Africa. Institutions from the United States of America (70%) and South Africa (20%) are leading in providing evidence on developing and implementing IPE programmes in the universities.

Who should develop the programme? Most IPE programmes were developed by a curriculum team/group/committee or stakeholders. The group comprised individuals from different disciplines in the health professions education institution or from organisations that have a stake in the institution or have expertise in the development of the programme (Anderson et al., 2019; Madigosky et al., 2019; Klocko et al., 2012; Shrader et al., 2016; Danielson & Willgerodt, 2018; Teodorczuk et al., 2016; Bridges et al., 2011). The team met face-to-face or on virtual platforms to plan and develop the programme (Madigosky et al., 2019; Klocko et al., 2012). For example, at Griffith University, Australia, an interprofessional collaborative steering group was formed within the health science faculty. The group comprised representatives from each school and discipline in the Health Group (Klocko et al., 2012). Also, (Shrader et al., 2016), in developing an IPE programme for the University of Kansas, stated that the stakeholder group should be broad but manageable to interfere with the development process.

Steps followed to develop the curriculum: Although the development processes differ from institution to institution, there are sequential elements that indicate similarities in the programmes included in this study, including (1) identifying the objectives of the programme (Anderson et al., 2019), (2) providing the context for the programme (Shrader et al., 2016), (3) reviewing the content of existing courses to identify courses that had content that could align with the concept of IPE (4) outlining the learning outcomes for the programme (Teodorczuk et al., 2016), (5) identifying the teaching and learning activities for the programme (Madigosky et al., 2019; Klocko et al., 2012), (6) identifying and (7) lobbying for resources to implement the IPE programme successfully. Also, piloting the developed programme for feedback and conflict-mitigating strategies was deemed necessary (Shrader et al., 2016).

Regarding Africa, the evidence suggests increasing institutions implementing IPE programmes in undergraduate health professions education. (Delawala et al., 2023) published a comprehensive process for developing the IPE programme for an undergraduate programme. The development of IPE programmes in the African institutions' programmes was done by a team of researchers in collaboration with the university staff. Through a sequential exploratory mixed-method approach, the team started by reviewing the literature to identify how other institutions developed IPE programmes (Delawala et al., 2022b; Filies & Frantz, 2017). Qualitative data analysis was done to contextualise the IPE programme; experts were interviewed to gather their opinions on IPE programmes (Delawala et al., 2022b). The research team conducted a context analysis to ensure the programme fit well in the institution's context. The results of these initial phases were synthesised and used to develop a programme for the institution (Delawala et al., 2022b).

Programme structure: The structure of the programmes varies from institution to institution due to the contextual nuances. While some were implemented over hours (Anderson et al., 2019a), weeks (Caratelli et al., 2020), years (Delawala et al., 2023; Klocko et al., 2012), others were implemented throughout the health professions training duration, albeit with shorter periods within each academic year. Most IPE programmes are implemented from the first year of health professions student enrolment (Madigosky et al., 2019; Klocko et al., 2012; Shrader et al., 2016; Danielson & Willgerodt, 2018; Teodorczuk et al., 2016; Bridges et al., 2011; Caratelli et al., 2020). Only a few IPE programmes were designed to begin in the second year of the student's enrolment (Danielson & Willgerodt, 2018). Some institutions' context permitted the compulsory implementation of the IPE programmes for all health professions students (Bridges et al., 2011; Filies & Frantz, 2017). However, others were optional (Delawala et al., 2022b). For example, the University of Colorado has an IPE programme that consists of a total of 32 sessions. Thus, 16 sessions were held in the spring semester of the first year, and 16 sessions were held in the fall semester of the second year. The first 15 sessions covered content within one of the three

competency domains (teamwork/collaboration, values/ethics, and quality/safety). Four of the 15 sessions were designed to build upon and reference prior content to enable students to make connections among the different domains. The final session is a Capstone, which includes content from each competency domain (Madigosky et al., 2019). Entry-level students from anesthesiology assistant, dentistry, medicine, nursing baccalaureate, pharmacy, physical therapy, physician assistant, and public health programs participate in the programme in the spring semester of the first year and fall semester of the second year.

What to include in the content of the IPE programme: Generally, the content of the IPE programmes described in the papers mirrors the four domains of the World Health Organization's framework for interprofessional education competency domains, including values/ethics, roles/responsibilities, interprofessional communication, and teams/teamwork. Also, specific content was added depending on the programme's objectives (Delawala et al., 2022b). For example, the Michigan Public Health Training Center at the University of Michigan School of Public Health developed a self-paced online training divided into five parts. The first section provides an overview of IPE, including the four interprofessional education collaborative competency domains: values/ethics, roles/responsibilities, interprofessional communication, and teams/teamwork. The second part of the programme emphasises the importance of interprofessional partnerships for effective population health practice and outcomes. The remaining three parts of the module feature three real-world examples of interprofessional collaboration (Anderson et al., 2019b).

Implementation of the IPE programme: The IPE programmes vary based on context. The programmes are packages as modules, sessions, phases or levels linked to each other and incorporate the core competencies of IPEC. Despite the different use of terminologies for the IPE programmes by the different institutions, the IPE programmes were generally implemented in a sequence with a preceding part serving as a prerequisite for a subsequent component. The first parts of the programmes are usually an overview of the IPE concepts, and the later parts expose the student to experiential learning in the clinical setting (Anderson et al., 2019; Madigosky et al., 2019; Klocko et al., 2012; Shrader et al., 2016; Danielson & Willgerodt, 2018; Teodorczuk et al., 2016; Bridges et al., 2011; Caratelli et al., 2020). The learning activities in implementing the IPE programmes include traditional lecture methods, group discussions/presentations, case studies, simulation activities, world café, patient care and patient home visits (Anderson et al., 2019; Madigosky et al., 2019; Klocko et al., 2012; Shrader et al., 2016; Danielson & Willgerodt, 2018; Teodorczuk et al., 2016; Bridges et al., 2011; Caratelli et al., 2020; Delawala et al., 2022b; Filies & Frantz, 2017). For example, the IPE programme at Michigan University provided an overview of IPE, including the four IPECP. The second part of the programme emphasises the importance of interprofessional partnerships for effective population health practice and outcomes. The remaining three parts of the module feature three real-world examples of interprofessional collaboration. Students have to complete a pre-survey before participation, then a post-survey (evaluation), and a post-quiz where a student must get 80%+ to pass the module (Anderson et al., 2019b). Griffith University's interprofessional educational activities are organised in three pedagogical phases. The first phase focuses on activities seeking to establish health professions literacy. This is defined as understanding the primary health professions' history, theoretical underpinnings, roles, and contributions. The second phase of the Griffith University curriculum includes day-long interprofessional student workshops organised to prepare students for mental health practice. Finally, in the third phase, the principles of IPE are applied in natural patient-care settings. Students from disciplines such as nursing, clinical psychology, medicine, and social work learn together to understand the contribution of their discipline and that of their peers in the mental health care setting. This activity is followed by facilitated group discussion and learning about each discipline's philosophies, epistemologies, training, and professional practice. Teaching and learning materials include a DVD of a patient's journey through the mental health environment and a placement workbook to aid reflection on team practices (Teodorczuk et al., 2016).

Table 1: Data extracted from Literature Review

Author	Country	Year of publication	setting	Development process	Description of the programme	Implementation of the programme
Anderson, et.al	USA	2019	University of Michigan School of Public Health	Recruitment and coordination of presenters to launch the IPE module. The staff met face-to-face and by phone to shape the IPE concepts with the module's learning objectives. Professional videographers were then hired to document a three practice-based sketch of the module. The module was given to an instructional designer to compile into a single online training file, with visuals designed to have a consistent look and feel. The module took nine months from conception to launch.	A self-paced online training that takes It takes approximately two hours to complete and is divided into five parts. The first section provides an overview of IPE—including the four Interprofessional Education Collaborative competency domains of values/ethics, roles/responsibilities, interprofessional communication, and teams/teamwork. The second part emphasises the importance of interprofessional partnerships for effective population health practice and outcomes. The remaining three parts of the module feature three natural--world examples of interprofessional collaboration.	Students in the academic course were invited to enrol in the training through a given link and to complete the online module requirements of a pre-survey, participation, post-survey (evaluation), and post-quiz (passing at 80%+).
Madigosky et al.	USA	2019	University of Colorado, USA	The formation of an IPE curriculum committee will create an IPE experience for health professional students. The committee started by reviewing the content of existing courses. The	IPE programme consists of sessions Each session covers different concept of IPE Sessions are designed to build upon and reference prior content to enable students to	Entry-level HP students participate in the programme with the following outcomes. a. Demonstrate knowledge, skills and behaviours of teamwork/collaboration, values/ethics, and quality/safety as an interprofessional team member.

				committee identified an existing course (Ethics in the Health Profession) to integrate IPE concepts. The committee outlined the teaching and learning activities for students and the faculty.	make connections among the different domains. The final session is a Capstone, which includes content from each competency domain.	Summary session learning objectives include: b. Identify and reflect upon team characteristics, formation and leadership c. Describe and apply structured team communication processes d. Describe and apply conflict management, advocacy, and assertion techniques e. Describe health professional values and ethics
Shrader, S et al.	USA	2016	University of Kansas Medical Center, Kansas City, Kansas, USA		A foundational programme with multiple large-scale, half-day events each year. The programme is threaded with standard curricular components that build in complexity over time and ensure that each learner is exposed to IPE.	The programme incorporated Team STEPPS (team strategies and tools to enhance performance and patient safety) into the foundational programme.
Caratelli,A. et al.	USA	2020	University of Michigan		14-week curriculum IPE programme divided into five 90-minute seminar sessions and four 4-hour clinic visits. Four course objectives were outlined to enhance student understanding and ability within the four concepts of IPECP.	Health professions students are divided into teams of three, including one student from each of the health professions disciplines get involved in Traditional lecture-based coursework and group discussions on IPEC core competencies, course objectives, and the overall course framework. 2. Experiential education during four site visits to two local clinics 3. incorporating their knowledge of the IPEC during the clinic

						(4) Demonstration of IPEC competencies through evaluation and identification of a critical IPECP
Danielson. J., & Willgerodt. M,	USA	2018	University of Washington, USA	A group of core faculty with expertise in curricular development developed an IPE framework in a series of iterative steps, thus building a shared philosophy for how and why interprofessional learning should occur in students. Compare curricula and examine accreditation standards for IPE across multiple health science schools. Identified common content areas across the programmes where students would have similar knowledge and skill levels. Designed IPE programme in line with the Core Competencies for IPECP		The implementation of the programme began in the second year. A blend of exposure and immersion activities included small group discussions and interprofessional shadowing experiences in practice settings (two to four hours total). In the third year of the programme, immersion experiences in the form of high-fidelity clinical reasoning and team communication simulations
Teodorczuk et al.	Australia	2016	Griffith University, Queensland, Australia,	Formation of an interprofessional collaborative steering group within the health science faculty. The group was made of representatives from each school and discipline in	Interprofessional education activities within the framework are organised in three pedagogical phases. Phase 1: activities seek to establish health professions literacy. The second phase is a day-long interprofessional	Health professions students from various disciplines, such as nursing and clinical, work together to understand the contribution of their discipline and that of their peers in the mental health setting. Followed by facilitated group discussion and learning

				the Health Group. The committee established a foundational health professions literacy centred on IPE concepts. The committee also worked to develop learning outcomes that all health professions students should meet. The committee then designed IPE activities linked to clinical practice. The activities allowed the building of respect for a deeper understanding of roles within professions. The activities focused on broader aspects of care relevant to all professions, such as patient safety and managing chronic illness.	student workshop organised to prepare students for mental health practice. Finally, in phase 3 activities, the principles of IPE are applied in actual patient-care settings.	about each discipline's philosophies, epistemologies, training and professional practice. Teaching materials to further guide learning include a DVD of a patient's journey through the mental health environment and a placement workbook to aid reflection on team practices.
Bridges et al.	USA	2011	Rosalind Franklin University of Medicine and Science		IPE programme is in phases, with a one-credit-hour pass/fail. It comprises a didactic component during which students attend nine 90-minute interprofessional small-group sessions to learn IPECP concepts. Discussions, preparation, presentations, case studies, and role-play are used to develop the discussion. The Service-learning component allows students to work in	During the course, all first-year students are grouped into 16-member interprofessional teams. Each team has a faculty or staff member, with a minimum of a master's degree, serving as a mentor. Mentors are trained before each class, and the lunch hour of every class day is set aside for mentors to review material and ask questions if necessary.

					interprofessional teams to identify a community partner and engage in a community service project. The other component is a clinical experience offered to interested students. Then, a second one-credit course, HMTD 501 Culture in Healthcare, was developed. In this phase, Students identify a specific health condition impacted by cultural beliefs and practices for a selected target group. They are asked to recognise culture's role in health beliefs and practices, as well as the specific impact culture has on health outcomes.	
Klocko et al., 2012	USA	2012	University of Texas Southwestern School of Health Professions	Stakeholders from seven disciplines at the University of Texas developed an IPE programme called IDEAL (Interdisciplinary Development Education and Active Learning. A workshop was organised, and the students reviewed the content of existing courses. And modified a course called HCS 3102 to align with the IPECP concepts. Known as HCS5106: Interdisciplinary Development Education.		First-year health professions students participate in the IDEAL IPE programme. Course objectives were incorporated into a series of teaching modules (i.e., PowerPoint slides and lecture notes). A faculty facilitator works with small groups of students (10 to 12) representing each program (e.g., interdisciplinary teams.) Students were also required to give the group a brief presentation on their profession in health. Facilitators would use the teaching modules and student presentations to promote student discussion and interaction.

				The stakeholders also designed the teaching and learning activities for students in health professions from seven (7) disciplines.		
Delawala et al.,	South Africa	2022	NWU-SA	A multi-method study designed in phases leading to the development of the programme. Phase one is a scoping review to synthesise the nature, development and implementation processes of global IPE programmes. Phase two was a qualitative analysis of documents that sought to analyse IPE programmes. Phase three consisted of a qualitative exploratory, descriptive study. Phases 4 and 5 programme development and evaluation	An optional IPE programme was developed. The programme was designed as a 3-year level as IPE 1, IPE 2 and IPE 3, with exclusive outcomes and assessment (for learning) criteria. Thus, first-year students experience IPE 1, second-year students experience IPE 2, and third-year students experience IPE 3. Each level in the programme content included common IPECP concepts	IPE 1 comprised the concepts of interpersonal communication, roles and responsibilities, ethics in healthcare and teamwork and collaboration with a world cafe' activity. IPE 2 incorporated the concepts of community intervention, health promotion, and research, as well as community diagnosis and public health campaigns. IPE 3 comprises diagnosis, problem-solving, and patient-centred care, with three activities: fantastic race, case study, and clinical simulation.

Discussion

This study sought to explore and synthesise the development and implementation of IPE programmes globally to inform the development of an IPE programme for a university in Ghana. We found that out of the flood of empirical literature on interprofessional education globally, only nine papers provided empirical evidence on developing and implementing IPE programmes. The United States of America produced seven out of the nine papers, while Australia and South Africa produced one each. This finding confirms the high number of empirical research publications in the United States compared to the rest of the world (Fontelo and Liu, 2018). This also indicated that many programme development processes have not been published due to poor quality or lack of capacity to write the processes in scientific publications. From the review, in most cases, the IPE programme development was done by a team or as a research study by a team of researchers. The team often performed more effectively when they worked together to achieve a collective goal; the IPE programme not only benefited the institution but also affected the workers' confidence and success, increased innovation, promoted change, and improved institutional adaptability and flexibility (Mangi AKanasro HBurdi M et al, 2015). We found that some institutions limited the team to the respective representatives of departments within the health sciences faculties. In contrast, others included stakeholders outside the departs, including clinical staff, students and interdisciplinary collaborators. It was also opined that having an adequate number of stakeholders helps, while too many group members may impede functions. It is, however, not known how many members are robust, too small or too large (Delawala et al., 2022a; Thistlethwaite, 2015b). Further research is needed to clarify this area of IPE programme development. Also, while some programmes were compulsory for students and required that students pass the modules, others were optional due to the institution's context.

For some institutions, the programme was delivered online, and some were delivered face-to-face. Some programmes were introduced as credit-bearing curricula components, while others were introduced as non-credit-bearing.

The WHO's Framework for Action on Interprofessional Education & Collaborative Practice recommends compulsory IPE programmes to overcome logistical challenges and promote effective collaboration (WHO, 2010). Some programmes were introduced in the first year of undergraduate student studies and ended in the fourth year. The programme was started later in the curriculum in other learning institutes based on the specific context. This latter approach, however, does not allow students to adapt early to the IPE concepts holistically once they graduate. Students joining a programme much later in their undergraduate years may have limited impact, and the objectives that IPE aims to achieve may not be realised (Aldriwesh et al., 2022).

Additionally, the methods of delivering the content of the IPE differed from institution to institution; the programmes used multiple methods of delivering content to students. This diversity suggests that IPE is flexible, and there is no single method of delivering IPE. Case studies with complex patient simulation laboratory activities, group discussions, patient home visits, presentations, role play during evenings, and varied scheduling such as weekends or all-day seminars are all possible methods and times for delivering IPE content. After deciding on all the alternatives for delivering IPE content, it seems that simulations and experiential learning should be considered mandatory in addition to other delivery methods. As stated by (Szyld et al., 2017), lived experiences make students easily develop collaborative and clinical skills.

Conclusion: The significance of IPE in health professions education has increasingly been realised globally, with many universities inculcating IPE into their Undergraduate curricula. However, empirical evidence on the development and implementation processes is scarce. Also, there is no specific model for developing and implementing IPE programmes, as contextual nuances influence the feasibility of the development and implementation processes. However, common elements of the development processes have been identified in this study. It is recommended that higher education institutions follow scientifically proven processes of IPE development and document their processes,

challenges and opportunities in empirical publications to shape future discourse and practice of IPE programme development globally.

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