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# Development and Implementation processes: The exploration of interprofessional education programmes

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**Abstract**

There have been many calls for Interprofessional Education (IPE) in the last decade. Many authors have attempted to produce guidelines, steps, and processes for developing undergraduate and graduate IPE programmes in health professions education. This scoping review, guided by the enhanced Arksey and O'Malley framework, sought to synthesise the nature, development, and implementation processes of interprofessional education programmes for health professions' students in higher education institutions.

Information was gathered from January 2016 to March 2022. Among the initially identified 1338 papers, thirty-four were selected and analysed. Our findings revealed that IPE programmes aimed to facilitate students' learning 'from', 'about', and 'with' each other, enhancing their interprofessional knowledge and skills for future professional settings. We observed that the design of IPE programmes was shaped by their intended purpose, target audience, and assessment methods. From the insights gleaned, we formulated a comprehensive ten-phase framework delineating the development process of IPE programmes: buy-in from the institution; form an IPE team; conduct stakeholder engagements regarding the IPE; learn from other institutions; articulate common IPE content of the various curricula; design the IPE programme/curriculum grounded in framework, theory and ethical principles; share programme for stakeholder inputs; finalise and seek accreditation/approval for the programme; implements programme; continually engage stakeholder involvement in evaluation and improvement. IPE stands as a cornerstone for the health workforce. We advocate for faculties and colleges of

health sciences to carefully consider the scientifically synthesised phases during the development and implementation of IPE programmes.

**Keywords:** Development, implementation, IPE programme, process, scoping review.

## Introduction

For better collaboration in the workplace and to elevate healthcare outcomes for patients, multiple healthcare professionals from diverse disciplines engage in coordinated teamwork to deliver safe, comprehensive, and efficient care for their clients. This approach, known as Interprofessional Collaborative Practice (IPCP), emerges from interprofessional education (IPE), where students from various health professions learn from, alongside, and about each other (Mohammed et al. 2021). IPE involves acquiring knowledge about the roles, abilities, limitations, and legal constraints of professionals from different fields (World Health Organisation (WHO) 2010).

Despite IPE's more than 50-year existence, the last ten years have seen a marked growth in the need for its improvement and integration on a global scale (Endacott et al. 2015; Herath et al. 2017; Thistlethwaite 2016; WHO 2010). IPE seeks to give healthcare students the abilities required for teamwork in the clinical setting, enabling the delivery of all-encompassing healthcare services. The involvement and support of patients, their families, carers, and communities are highlighted by this collaborative paradigm (WHO 2010). Additionally, including IPE in the curriculum for students pursuing health professions helps them develop a common appreciation for collaborative practice and teamwork in their future professions (Branch-Mays et al. 2018; Byerly et al. 2021). Early exposure to IPE during undergraduate education helps students understand their own responsibilities and value the contributions of other medical professionals to patient care provided in a team environment (Samuriwo et al. 2020; Zechariah et al. 2019).

Despite IPE's advantages, a lot of medical professionals still receive their training in conventional silos, which prevents the health system as a whole from practicing collaboratively (Anderson et al. 2016a). The difficulty of creating and executing IPE projects is a factor in this pattern (Christmals and Armstrong 2020; Delawala 2020; Reitsma et al. 2019; Sulistyowati and Walker 2019). Reitsma et al. (2019, p.298) found challenging professional curricula as a deterrent to IPE participation. Sunguya et al. (2014, p.3) mentioned various barriers, together with curriculum differences, scheduling problems, resource restrictions, and stereotypes. Additionally, Ahmady et al. (2020, p.229) emphasised structural, educational, and cultural challenges, such as lack of organisational support and facilitator skills. Delawala (2020, p.76) further mentioned that Interprofessional Education and Collaborative Practice (IPECP) and teamwork are hindered by team stress.

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Organisations like the Africa Interprofessional Education Network (AfrIPEN), have prompted IPECP programme development and implementation (Botma and Snyman 2019), gathering favourable regional and global responses. Several institutions

in South Africa (SA) and around the world have carried out efforts to produce and implement IPE programmes (Ahmady et al. 2020; Botma and Snyman 2019; George Washington University 2020 and 2021; Grymonpre 2016; Nicol et al. 2013; Shrader et al. 2014; Sunguya et al. 2014; University of Southampton 2020; Western University 2020). Nevertheless, the design and execution of IPECP programmes vary among institutions, evident in their objectives, emphasis, and developmental approaches, though all aimed at preparing students for IPCP. Acquiring core and supplementary competencies for IPCP through IPE is resource-intensive and time-consuming. Evaluated IPECP programmes have demonstrated a beneficial influence on student learning and the broader healthcare system. Yet, the design and execution of IPECP programmes vary across institutions, encompassing aspects such as healthcare quality and safety for patients/clients, respect for diverse professions, enhanced interprofessional relationships, heightened productivity, cost reduction in healthcare, alignment in skills and knowledge, and anticipation of future healthcare system requirements (Acquavita et al. 2019; Bares et al. 2018; Chan et al. 2017; Forstater et al. 2019; Heath et al. 2019; Konrad et al. 2017; Kutt et al. 2019; Madigosky et al. 2019; Müller & Couper 2021; Nicol et al. 2013; Safabakhsh et al. 2018; Van Gessel et al. 2018).

The nature of the programme, development, and implementation processes within institutions in SA also vary. The University of the Western Cape (UWC), the University of the Free State (UFS), the University of Witwatersrand (WITS) and Stellenbosch University (SU) have integrated IPE programmes into their health curricula (SU 2019; UFS 2020; UWC 2013; WITS 2020). At UWC, an Interprofessional Education Unit (IPEU) has been established to administer IPE, providing centralised curricula and venues for student training (UWC 2013). Likewise, the Centre for Health Professions Education (CHPE) at SU promotes a culture and skill set aimed at enhancing patient/client outcomes and fortifying the healthcare system through IPECP (SU 2019).

Many authors have endeavoured to streamline the development and implementation processes of IPE programs by producing guidelines, steps, and procedures for integrating interprofessional education within health professions (El-Awaisi et al. 2016; Kahaleh et al. 2015; O'Keefe & Ward 2018; van Diggele et al. 2020). The effectiveness of processes in the development and implementation of IPE programs remains unclear. This review aimed to consolidate the most effective steps by synthesising the nature, development, and implementation processes of IPE programs.

## Method

Design: This scoping review followed the enhanced Arksey and O'Malley (2005) framework outlined by Peters et al. (2015). Scoping reviews aim to summarise the breadth and depth of evidence within a particular field (Levac et al. 2010), serving as precursors to planned systematic reviews or standalone efforts to map evidence in emerging fields (Christmals and Armstrong 2019). Given that IPE is an evolving area of study, a scoping review was deemed the most suitable methodology. The scoping review framework is comprised of the following steps: synchronising the research question and the objectives; setting the inclusion criteria; literature search; inclusion and exclusion of evidence; data charting, synthesising and reporting of results (Peters et al. 2015).

Synchronising the research question and objectives: The review question was guided by the PCC (Population Concept and Context) mnemonic developed by Joanna Briggs Institute (The Joanna Briggs Institute 2015); thus, "what constitutes the nature, development and implementation processes of an IPE programme in health professions education"? The population (P) being explored are health professions' students, the concept (C) is the development and implementation processes of IPE programmes, and the context (C) is global.

The inclusion and exclusion criteria: Studies not centred on undergraduate students were excluded, as the primary focus was on IPE for undergraduates in health professions education. However, if the authors deemed it necessary, graduate studies were considered for further analysis. Additionally, studies were excluded if they evaluated IPE programmes without specifying the development and implementation process, as this did not align with the review's aim. Similarly, studies were excluded if they only presented outcomes related to opinions, attitudes, and perceptions of students, staff, and professionals on IPE programmes without detailing the development and implementation

process. Lastly, studies focusing solely on one profession, despite providing the IPE programme development and implementation process, were also excluded.

Literature search: Searches were conducted on EBSCOhost (MEDLINE, CINAHL, Academic search complete, Health Source: Nursing/Academic Edition, SocINDEX, MasterFILE Premier and Health-Source Consumer Edition), Scopus and PubMed, for relevant studies using Boolean combinations of the keywords: Interprofessional education, curriculum, development. The papers identified were imported into Mendeley reference manager where duplicates were removed. The titles of the studies were scanned for appropriateness; titles deemed irrelevant to the review, lacking either of the keywords or any related terms, were omitted from consideration. Abstracts of the remaining articles were read to determine the appropriateness of the studies to the review. Additional articles were excluded based on their abstracts if they did not offer information pertinent to the aim of this paper. Further literature was sought by scrutinising the reference lists of the chosen articles. The initial search was performed in September 2020 and subsequently updated in April 2022.

Studies included: We extracted relevant full-text articles and structured them into a data matrix (Table 1) to aid visual analysis and synthesis. This method of extracting evidence enabled the alignment of the results with the summary of the findings from the articles. The extraction process followed modified data extraction procedures outlined by Peters et al. (2015). The PRISMA flowchart illustrating the search and inclusion process is depicted below (Figure 1).

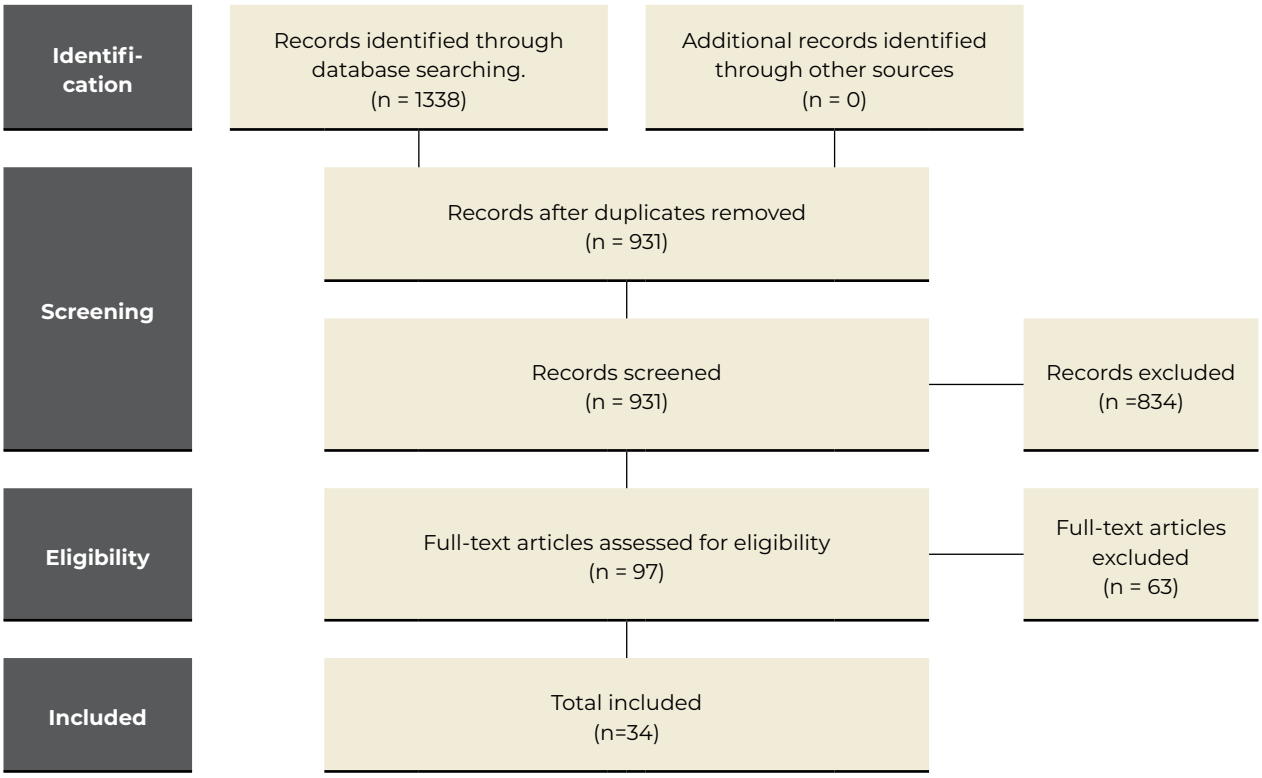


Figure 1. PRISMA flowchart indicating search and inclusion

Data charting: The following aspects were charted: author, date and setting, purpose /outcomes of the study, target audience of the IPECP programme; programme development process and developed programme; and key findings/results related to the scoping review questions were extracted from the studies included into a data matrix (Table 1). The extraction process was conducted by the primary author and verified by the other two authors.

## Analysis and Presentation of the Evidence

The data from the included studies were qualitatively synthesised and represented in the data matrix (Table 1) (Pearson et al., 2011). This synthesis involved individual review, interpretation, and analysis, consolidating data from various findings across the included studies. Similar findings were aggregated to facilitate coherent discussion and comprehension of the development and implementation of IPE programmes.

Distribution of studies included: Among the 34 included papers, 18 were published in the United States of America (USA), with four from the United Kingdom (UK), two each from the Peoples' Republic of China, Germany, and one each from Australia, Canada, Iran, Malaysia, Qatar, SA, Sweden, and Switzerland (Figure 2).In terms of the annual distribution of included studies, Figure 3 illustrates a downward trend, with the highest number (7) of studies published in 2019, decreasing to the lowest count (4) by the beginning of 2022.

The nature of the IPE programme: IPE programmes could be described in terms of their: a) purpose/ outcomes, b) target audience, and c) mode of assessment (Kahaleh et al. 2015).

Purpose/ outcomes: The objectives outlined in the IPE programmes featured in the studies determine their design, implementation, and intended audience. All IPE programmes aimed to enhance IPCP. While some focused on specific clinical or community contexts, others targeted general IPE competencies. For instance, certain programmes aimed to impart skills and attitudes for clinical practice, aligning with the Interprofessional Education and Collaborative (IPEC) competencies (Bares et al. 2018; Branch-Mays et al. 2018). Authentic learning experiences, as emphasised by Chan et al. (2017), provided students with opportunities for skill development and

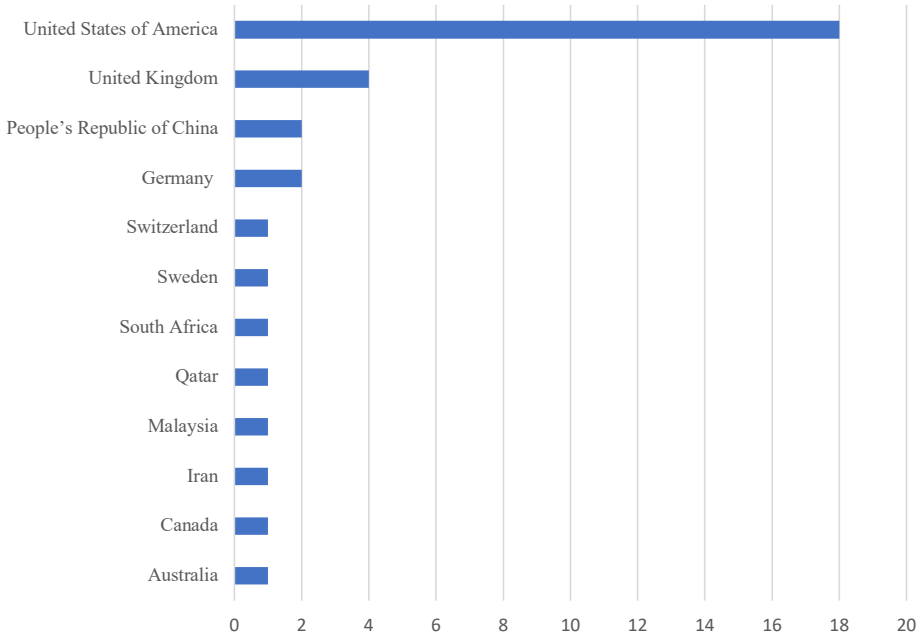


Figure 2. Country distribution of studies included

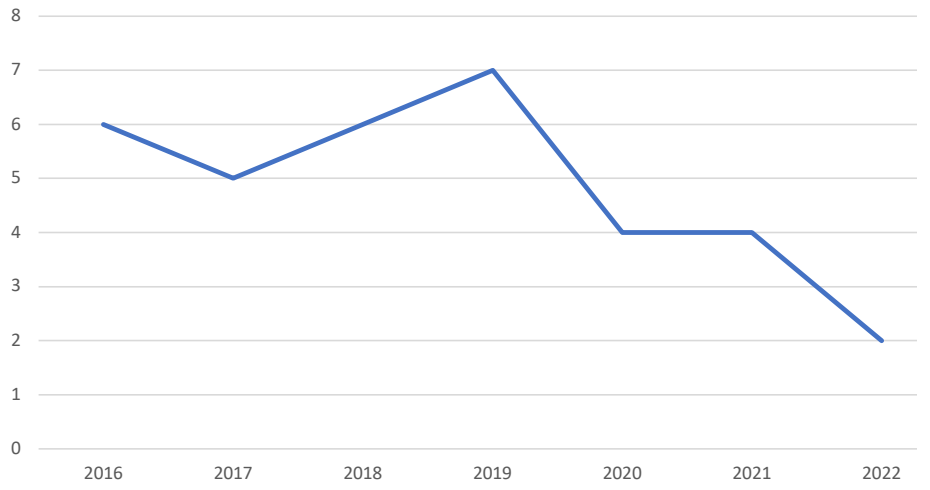


Figure 3. Yearly distribution of studies included (January 2016-March 2022)

fostering intra-team relationships for patient-centred care. Various studies identified potential outcomes such as patient safety, community wellness, and collaborative practice (Acquavita et al. 2019; Anderson et al. 2016a; Forstater et al. 2019; Heath et al. 2019; Konrad et al. 2017; Madigosky et al. 2019; Stubbs et al. 2017). Additionally, students in Kutt et al. (2019, p.278) emphasised the importance of conflict resolution, collaborative problem-solving, and time management within IPECP.

Target audience: The target audience for the assessed IPE programmes included students from all undergraduate health programmes. The following professions were included (pharmacy, social work, healthcare, medical, dentistry, radiography, physician assistant, nursing, medicine, nutrition, dietetics, occupational therapy, exercise science, psychology, veterinary medicine, natural medicine, public health, dental therapy, dental hygiene, osteopathic medicine, anaesthesiology assistant, medical laboratory science, healthcare administration, speech-language pathology, speech and hearing science, biomedical science, midwives, physiotherapy and medical radiology technologists) and other disciplines such as Chinese medicine (Chan et al. 2017) and theology (Stubbs et al. 2017). Four studies included students from undergraduate and graduate levels (Acquavita et al. 2019; Anderson et al. 2016a; Konrad et al. 2017; Schuller et al. 2017), whereas two were included graduate levels (Cahn et al. 2018; Forstater et al. 2019). For El-Awaisi et al. (2016, p.2) and Safabaksh et al. (2018, p.461), no target audience was selected as these studies spoke about introducing, designing and developing IPE.

Clinical IPECP programmes typically cater to students pursuing clinical practice professions, whereas community-based programmes encompass a wider array of professions, extending to include disciplines such as theology and traditional medicine practitioners. For instance, compared to clinic-based IPE programmes offered by Bares et al. (2018), Forstater et al. (2019) and Kutt et al. (2019), the target audience for community-based programmes presented by Acquavita et al. (2019) and Stubbs et al. (2017) is larger. Some programmes are well-rounded, comprising acute care and community-based follow-up care components (Cahn et al. 2018; Prast et al. 2016). Some specialised community-based programmes, however, included fewer professionals (Heath et al. 2019; Herrera et al. 2019). Furthermore, social work professionals cut across clinical and community-based programmes (Acquavita et al. 2019; Chan et al. 2017; Heath et al. 2019; Herrera et al. 2019; Konrad et al. 2017; Stubbs et al. 2017).

Mode of assessment: Given the nature of different IPE programmes, it became clear that more than one mode of assessment of the students, was used in many studies. In specific contexts, students were instructed to undertake pre-tests and readiness assessments prior to engaging in the programme. In certain programmes, students underwent assessments following each activity within the IPE programme, while in others, they were required to complete post-tests, teamwork evaluations, assessments on IPE competencies, and programme evaluations. Consequently, assessments were administered both before, during, and after the IPE programme. Figure 4 illustrates the modes and tools of assessment employed in the studies.

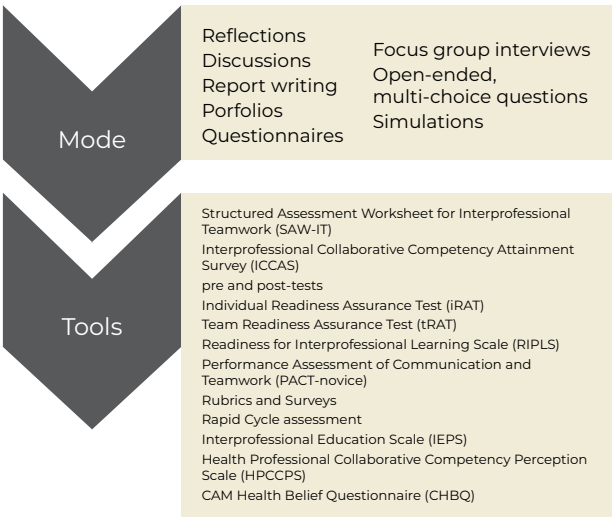


Figure 4. The mode and tools of assessment used in the studies included

## Development of IPE programmes

Models, frameworks, and theories used in the development of IPE programmes: Eight papers mentioned specific models and frameworks employed in the development of IPE programmes. These included the Interprofessional Collaborative Practice Domains model (Prast et al. 2016), the Substance Abuse and Mental Health Administration (SAMHSA) model (Acquavita et al. 2019), flipped classroom model (Forstater et al., 2019), Three Strand

Model of Interprofessional Learning (IPL) (Anderson et al. 2016b), the Boyer's model of scholarship (Frantz and Rhoda 2017); IPEC competencies (Branch-Mays et al. 2018; Cahn et al. 2018; Danielson and Willgerodt 2018).

Branch-Mays et al. (2018) aligned their objectives with the IPEC core competencies (IPEC 2011), emphasising small group sessions and facilitators within the course. Similarly, in Cahn et al. (2018, p.784), the integration of IPEC competencies was pivotal for fostering collaborative learning among students. Danielson and Willgerodt (2018, p.1134-1136) utilised the Kirkpatrick framework, a tool for analysing and evaluating educational programmes, to map IPEC core competencies in their IPE framework development. This framework is geared towards assessing responses, attitudes, and insights from specific IPE activities, along with behavioural and structural changes. Anderson et al. (2016b, p.386-390) combined the Kirkpatrick framework with theories from cognitive constructivism to evaluate the impact of IPE within the three-strand model.

Kolb and Kolb's (2009) experiential learning theory was employed by some programmes (Acquavita et al. 2019; Anderson et al. 2016a; Bares et al. 2018; Forstater et al. 2019; Kutt et al. 2019; Van Gessel et al. 2018). Students had to complete the learning outcomes of IPE. Students' reflections and observations were based on concrete experiences, followed by the absorption of abstract concepts for implementation and lastly, evaluated in active trials.

Phases of IPE programme development: Generally, IPE programmes were developed in phases (Danielson and Willgerodt 2018; El-Awaisi et al. 2016; Herrera et al. 2019). Developing IPE programmes requires significant labour and time investment, yet the resulting benefits justify the effort expended, surpassing the challenges encountered (Anderson et al. 2016a; El-Awaisi et al. 2016; Madigosky et al. 2019). Professionals in the field advocate for the gradual development and piloting of IPE programmes before their widespread implementation (Kemp et al. 2012). Numerous studies have delineated, to differing degrees, the stages or procedures involved in developing the IPE programmes (Anderson et al. 2016a; Branch-Mays et al. 2018; Danielson and Willgerodt 2018; El-Awaisi et al. 2016; Herrera et al. 2019; Kutt et al. 2019; Prast et al. 2016), while others did not detail the programme development process (Anderson et al. 2016b; Cahn et al. 2018; Frantz and Rhoda 2017; Heath et al. 2019; Konrad et al. 2017; Rajiah and Mari Kannan 2016; Schuller et al. 2017; Stubbs et al. 2017; Teodorczuk et al. 2016). However, they were clear regarding the implementation and evaluation of the programs. Figure 5 outlines the consolidated processes for developing IPE programmes in the included studies.

Buy-in from the institution: Institutional buy-in in terms of management and administrative level was important in IPE programme development (Cahn et al. 2018; El-Awaisi et al. 2016; Teodorczuk et al. 2016; Van Gessel et al. 2018). Cahn et al. (2018, p.784) highlighted the significance of initial leadership

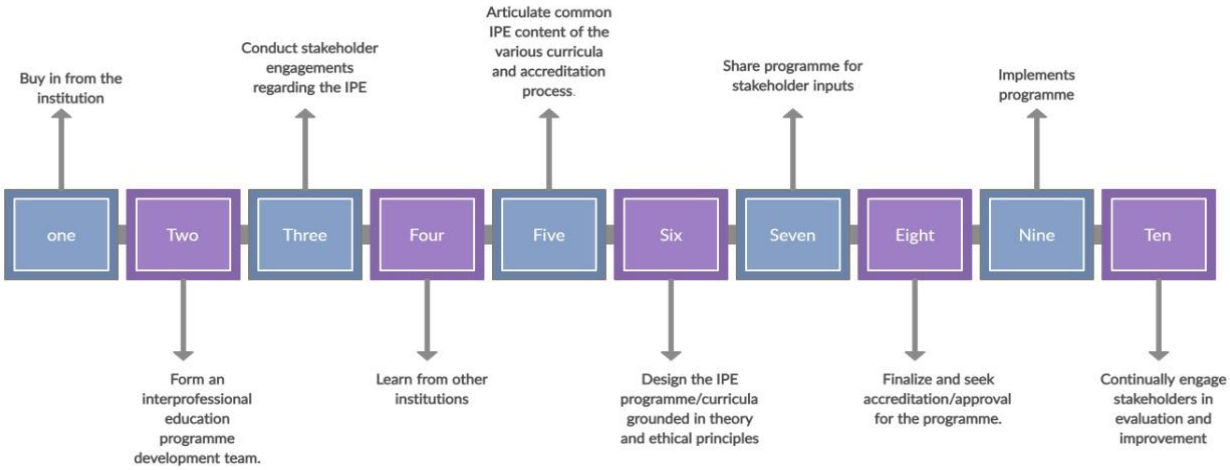


Figure 5. IPE programme ten-phased development process

support for the development of IPE programmes. It is essential for leadership to recognise the necessity of supporting the development of the IPE programme (El-Awaisi et al. 2016).

Form an IPE team: Typically, an IPE team is assembled by selecting staff members from each programme (Cahn et al. 2018). In Teodorczuk et al. (2016, p.9), it is referred to as an IPE advisory team, while Herrera et al. (2019, p.35) and Prast et al. (2016, p.167) use the terms IPE committee or task force. Additionally, Branch-Mays et al. (2018, p.60) established an IPE steering committee to set objectives and form a core interprofessional team. Anderson et al. (2016a, p.434), Danielson and Willlgerodt (2018, p.1135), and Kutt et al. (2019, p.275) concurred on establishing a local group to devise IPE strategies, a core faculty curriculum group, and a working group in their respective studies. El-Awaisi et al. (2016, p.2) mentioned initiating the process by forming a learning group comprising colleagues who could compare their perceptions of IPL and Interprofessional Practice (IPP).

Conduct stakeholder engagements regarding the IPE: Identifying and engaging with stakeholders is necessary after formulating the IPE team (Anderson et al. 2016a, p.434). Targeting diverse stakeholders, especially students (El-Awaisi et al. 2016, p.2), to form a critical mass for IPE and IPP was also stated by Frantz and Rhoda (2017, p.182). Branch-Mays et al. (2018, p.60) noted that their core interprofessional team engaged and collaborated with stakeholders. In Kutt et al. (2019, p.274), working groups invited leaders from specific health professions' education units to engage with the IPE development phase. Anderson et al. (2016a, p.435) emphasised clinical facilities as a crucial stakeholder in IPE programme development.

Learn from other institutions: Stubbs et al. (2017, p.652) note that many institutions have integrated IPE into their curricula. The content of these established IPE programmes can serve as a basis for developing new programmes. There is variability in how these programmes are delivered to students, with some being credit-bearing components of health science curricula and others being non-credit-bearing and optional short programmes. Safabakhsh et al. (2018, p.461) propose a systematic approach to learning from experts, institutions, and studies to develop an IPE model, focusing on objectives, content, and strategies. Consulting experts from these universities can provide valuable insights into the development and implementation of IPE programmes (Safabakhsh et al. 2018). Additionally, published data from institutions can serve as a helpful guide in this process. El-Awaisi et al. (2016, p.2) discuss the differences in IPE programme integration across institutions and advocate for embracing current collaborative frameworks and considering factors such as the number of professions involved in activities. Herrera et al. (2019, p.35) and Stubbs et al. (2017, p.653) underscore the importance of collaborative efforts between institutions in developing and implementing IPE programmes.

Articulate common IPE content of the various curricula: Articulating the common content for target health professions is a challenging aspect of IPE programme development (Branch-Mays et al. 2018; Teodorczuk et al. 2016). Utilising IPEC competencies can provide guidance in establishing this content (Cahn et al. 2018; Danielson and Willgerodt 2018). These competencies delineate the fundamental knowledge, skills, and attitudes required for effective interprofessional collaboration. Moreover, Cahn et al. (2018, p.782) emphasise the importance of considering accreditation, design, and assessment within the context of IPE programme development, which further supports the alignment of programme content with established standards and objectives. To facilitate collaborative planning, it is essential to establish structures that promote collaboration (Frantz and Rhoda 2017), as well as structures for the collaborative formulation of learning outcomes (Teodorczuk et al. 2016). Danielson and Willgerodt (2018, p.1136) documented that a central faculty curriculum committee identified and delineated shared curriculum content, as well as assessed the proficiency level of students from each programme regarding this shared content. El-Awaisi et al. (2016, p.3) and Herrera et al. (2019, p.35) also underscored the importance of identifying common themes in IPE across the curricula content of the respective professions to facilitate collaboration.

Design the IPE programme/curricula grounded in framework, theory and ethical principles: Frantz and Rhoda (2017, p.182) underscore the necessity for integrating a theoretical framework into the development process of the IPE programme.

Prast et al. (2016, p.167) utilised the IPCP competency domains to guide the development of the IPE programme. Acquavita et al. (2019), Danielson and Willgerodt (2018, p.1136) and Anderson et al. (2016a, p.438) advocated for grounding the development of IPE programmes in theoretical principles. Teodorczuk et al. (2016, p.10) identified designs for clinical practice activities to be developed. Branch-Mays et al. (2018, p.60) utilised core competencies to draft their IPE programme, while Danielson and Willgerodt (2018, p.1134) mapped IPE core competencies onto Kirkpatrick's evaluation domains to develop their IPCP curriculum framework. Danielson and Willgerodt (2018, p.1134) also held bi-weekly meetings for reviewing and classifying competencies according to the IPE model developed by the Universities of Alberta and British Columbia (Charles et al. 2010), constituting the IPE curriculum framework. The curriculum framework then guided the development of their IPE curriculum. El-Awaisi et al. (2016, p.3) emphasised the collaborative design of IPE programmes and determining their fit within the professional category. Herrera et al. (2019) incorporated their programme into existing curricula, while Forstater et al. (2019), Madigosky et al. (2019), and Mcquown et al. (2020) integrated inputs from the TeamSTEPPS® programme into their IPE development processes.

Share programme for stakeholder inputs: In this phase, the programme plan is shared with all possible stakeholders for their inputs (Anderson et al. 2016a; Branch-Mays et al. 2018). For instance, Danielson and Willgerodt (2018, p.1135) distributed the IPE programme to internal stakeholders for assessment, subsequently engaging interprofessional groups, such as clinical practice stakeholders and international experts, for sequential review.

Finalise and seek accreditation/approval for the programme: Anderson et al. (2016a) mentioned seeking accreditation once the programme has been shared for input. However, before seeking approval from management, it is essential to consider accreditation requirements and align the programme accordingly. Accreditation guidelines may influence various aspects of programme design, content, and evaluation (Selesho 2013).

Implements programme: Danielson and Willgerodt (2018, p.1134) shared a common approach, incorporating an implementation plan based on the IPEC core competencies and the Kirkpatrick model. The implementation of the programme is crucial (Herrera et al. 2019; Kutt et al. 2019), and upon implementation, it's essential to motivate students and staff to fully embrace and participate in the IPE programme, underscoring the importance of collaboration. Without this buy-in and engagement, the programme risks falling short of its intended goals (El-Awaisi et al. 2016). Across the studies examined, IPE programmes were implemented employing diverse teaching methodologies, learning approaches, assessment techniques, and evaluation methods. The most frequently used methods and activities of implementation included patient scenarios, and students made use of documents such as keeping records, writings (notes), journals and guidebooks, practising in a community/rural environment, online platform/materials, case studies, and clinical experience (Acquavita et al. 2019; Anderson et al. 2016a; Anderson et al. 2016b; Bares et al. 2018; Branch-Mays et al. 2018; Cahn et al. 2018; Forstater et al. 2019; Guilding et al. 2020; Heath et al. 2019; Konrad et al. 2017; Kutt et al. 2019; Madigosky et al. 2019; Prast et al. 2016; Rajiah and Mari Kannan 2016; Schuller et al. 2017; Stubbs et al. 2017; Teodorczuk et al. 2016; Van Gessel et al. 2018).

Experiential learning emerged as a recurrent theme in the studies and plays a vital role in achieving the goals of IPE. First, engaging students in community diagnosis, reporting, and discussions provided them with "lived experiences," aiding in the development of competencies (Heath et al. 2019; Stubbs et al. 2017). Rajiah and Mari Kannan (2016, p.240) employed community-based learning to foster students' acquisition of attitudinal and cultural competencies in healthcare. Additionally, simulations involving simulated patients facilitated active and experiential learning, enabling the identification of various roles and responsibilities (Prast et al. 2016; Van Gessel et al. 2018). Prast et al. (2016, p.168) conducted simulations where team members were assigned specific roles to fulfil. Thirdly, engaging in clinical practice, where students gained real-life patient care experiences, was crucial for developing IPEC competencies in students (Konrad et al. 2017; Schuller et al. 2017; Teodorczuk et al. 2016; Van Gessel et al. 2018). Konrad et al. (2017, p.51) employed relational and

Practice Learning (PL) to foster relationships for future collaborations among practitioners. Additionally, Stubbs et al. (2017, p.653) elucidated that students could dedicate their time to service-learning (engaging with clients and problem-solving), thereby enhancing teamwork and comfort in collaborative learning.

Other types of activities used in implementing IPE programmes include Team-Based Learning (TBL), Case-Based Learning (CBL), Skill-Based Learning (SBL) and online learning. TBL was used in three studies (Chan et al. 2017; Konrad et al. 2017; Madigosky et al. 2019) to conduct IPE activities, fostering active student engagement within a team-oriented learning environment (Madigosky et al. 2019). In-class and online learning were supported (Chan et al. 2017), along with TBL in the clinical setting. Frantz and Rhoda (2017, p.181) advocated for the biopsychosocial approach, facilitating the representation of diverse health professions and thereby promoting IPE through activities like world cafes and IPP. Case-Based Learning (CBL) was integrated into several programmes, offering students experiential learning opportunities through scenario work, case analysis, assessments, and collaborative problem-solving with other healthcare professionals (Browne et al. 2021; Guilding et al. 2020; Konrad et al. 2017; Kutt et al. 2019). Moreover, Skill-Based Learning (SBL), a collaborative learning approach, was mentioned by Rajiah and Mari Kannan (2016) wherein students exchanged information and communicated their respective roles to other healthcare professionals.

Continually engage stakeholders in evaluation and improvement: The programme should undergo evaluation for potential enhancements (Anderson et al. 2016a; Anderson et al. 2016b). Danielson and Willgerodt (2018, p. ) support the idea of faculty debriefing as it would facilitate engagement, reflection, area enhancement, and informed decision-making. Various methods, including concluding assessments, programme evaluations, and student assessments, are employed for programme evaluation (Acquavita et al. 2019; El-Awaisi et al. 2016; Herrera et al. 2019; Kutt et al. 2019). Evaluation tools such as the Interprofessional Attitudes Scale (IPAS) and the IPEC Assessment Tool can be utilised to assess students (Reeves and Barr 2016). Branch-Mays et al. (2018, p.60) recommend conducting annual reviews based on student and staff feedback, while El-Awaisi et al. (2016, p.4) propose sharing the IPE experience through academic means. Hence, evaluations play a crucial role in IPE programmes and can encompass reflections, discussions, structured observations, surveys, portfolio completion, and debates (Anderson et al. 2016b; Cahn et al. 2018; Herrera et al. 2019; Madigosky et al. 2019; Prast et al. 2016; Rajiah and Mari Kannan 2016; Stubbs et al. 2017). Other evaluation tools used included the IEPS, HPCCPS, CHBQ, ISVS, pre and post-tests, SAW-IT, rapid-cycle programme assessment, Kirkpatrick model, RIPLS, iRAT, tRAT and ICCAS (Bares et al. 2018; Branch-Mays et al. 2018; Chan et al. 2017; Danielson and Willgerodt 2018; Forstater et al. 2019; Konrad et al. 2017; Kutt et al. 2019; Madigosky et al. 2019; Mcquown et al. 2020; Stubbs et al. 2017).

## Contributions of IPE programmes included in this study

The main findings identified across the various papers encompassed skill enhancement, including time management and conflict resolution, improved content knowledge and attitudes, the significance of patient-centred education, collaborative problem-solving within teams, establishment of clinical teams, institutional support acquisition, and overcoming obstacles to learning (Acquavita et al. 2019; Anderson et al. 2016a; Anderson et al. 2016b; Bhattacharya et al. 2021; Guilding et al. 2020; Heath et al. 2019; Ho et al. 2022; Krampe et al. 2022; Kutt et al. 2019; Mastel-Smith et al. 2020; Rajiah and Mari Kannan 2016; Safabakhsh et al. 2018; Van Gessel et al. 2018). Moreover, the results encompass enhanced professional identity, heightened understanding of the roles of diverse professions with increased respect and appreciation for them, enhanced communication skills, strengthened teamwork, values, and ethics, establishment of interprofessional networks, collaboration, and utilisation of theory and pedagogy (Bares et al. 2018; Branch-Mays et al. 2018; Browne et al. 2021; Cahn et al. 2018; Chan et al. 2017; Danielson and Willgerodt 2018; Fiske et al. 2021; Friedrich et al. 2021; Guilding et al. 2020; Heath et al. 2019; Ho et al. 2022; Ivarson et al. 2020; Konrad et al. 2017; Krampe et al. 2022; Kutt et al. 2019; Madigosky et al. 2019; Mcquown et al. 2020; Reed et al. 2021; Safabakhsh et al. 2018). Forstater et al. (2019, p.2) reported that patient safety improved and medical errors diminished through IPECP.

## Discussion

We found that most of the studies were published in the USA (18) and the UK (6). Only one study was included from Africa, which was South Africa (Frantz and Rhoda 2017). This is not surprising as the high-income countries lead in a research capacity, funding and outputs reported in many studies. Scopus index papers were analysed from 102 countries and findings suggest that the USA and the UK accounted for more than half of the global IPECP publications (Erfanmanesh et al. 2017; Pandita and Singh 2022). While IPECP is on the rise in SA, its presence remains relatively limited, possibly due to the types of publications on IPECP in Africa. Although IPE is gaining traction in the South African context, it does not enjoy the same level of popularity as in countries like the USA or UK.

Moreover, numerous programmes drew guidance from established theories, enabling adaptation to contexts. Kolb's theory found application due to its alignment with the core IPE competencies, which emphasise learning through practical experience, an aspect central to Kolb's experiential learning theory. Theoretical frameworks such as experiential learning, TBL, CBL, PL, and community-based learning were commonly utilised in the development of IPE programmes. Furthermore, the approaches to IPE were diverse, with numerous studies integrating multiple learning methods into their programmes. Consequently, an IPE initiative could offer health professions students from various institutions exposure to a range of teaching and learning modalities. Among these, the most common methods included 'patient/scenario/mock-ups' and 'documents' (such as records, notes, journals, writings, and guidebooks). The prevalence of patient/scenario/mock-ups may be attributed to the crucial role of clinical components in health professions curricula, where engaging with clinical scenarios is vital for effective experiential learning activities. Poore et al. (2014, p.245) emphasised the use of real-life experiences to enhance collaborative and clinical skills. Students could readily apply their newfound knowledge and skills within an interprofessional team setting. Therefore, scenarios/mock-ups play a pivotal role in both IPE and student training. Ensuring appropriate evaluative measures, along with the use of suitable evaluation tools, is essential to gather feedback effectively. The evaluation methods used to gather feedback varied and included qualitative, quantitative, or mixed approaches. Quantitative assessments often utilised surveys such as the iRAT and tRAT, whereas qualitative evaluations predominantly involved student orientations, reflections, and discussions. Surveys through pre and post measures and discussions were found in mixed method evaluations. In their study, Reeves et al. (2015, p.603) outlined a selection of three evaluation designs: qualitative, quantitative and mixed methods, as was determined and acknowledged in this study.

The WHO *Framework for Action on Interprofessional Education & Collaborative Practice* suggests making IPE programmes mandatory to address logistical hurdles and enhance collaborative effectiveness (WHO 2010). In terms of implementation timing, certain programmes were integrated into health curricula at a later stage, possibly due to curriculum constraints or the necessity for prerequisites like patient diagnosis. Conversely, in some institutions, IPE was initiated from introduced from the first and continued through to the final year. It is advisable to introduce IPE early in higher education to ensure students are accustomed to delivering healthcare services in an interprofessional and comprehensive manner upon graduation (WHO 2010). Delaying students' participation in an IPE programme until later stages of their undergraduate, graduate, or postgraduate training may constrain the programme's intended impact and objectives (Aldriwesh et al. 2022). Finally, our findings underscored that most of the developed programmes were rooted in theory, highlighting the importance of educational theory in health professions education. We condensed the development process into ten comprehensive phases to provide guidance for institutions and academics in the development, implementation, and review of IPE programmes.

## Conclusion

This scoping review examined IPE programmes worldwide, noting a predominance of articles from the USA, indicating a robust IPE landscape there. The nature of these programmes encompassed their goals, audience, and assessment methods. Programme development involved utilising models, frameworks, and theories, alongside phased approaches. While implementing IPE

faced challenges such as garnering institutional support and accommodating busy student schedules, its short-term implementation showcased benefits in nurturing diverse skills crucial for effective healthcare. Collaboration within interprofessional teams consistently led to improved health outcomes, highlighting the value of IPE. Embedding IPE in health curricula is pivotal for preparing students to work across disciplines post-graduation. Tailoring IPE programmes to address specific national healthcare needs and ongoing evaluation for enhancements are imperative. To aid global IPE programme development, we distilled an evidence-based process, encouraging its adaptation by academics and institutions to foster collaborative learning among health professions students.

Table 1. Data matrix

| No. | Author, Setting | Purpose/ Outcomes | Target Audience | Programme development | Programme Developed | Key results that relate to the scoping review question/s |
|---|---|---|---|---|---|---|
| **1.** | Acquavita et al. (2019)<br>United States of America | Assessed outcomes of an IPE course spanning a semester focused on Screening, Brief Intervention, and Referral to Treatment (SBIRT). | 200 students from:<br>Undergraduate, senior/masters social work,<br>medicine,<br>Graduate pharmacy and<br>Undergraduate or graduate nursing | The SBIRT detects risky substance use based on a public health model, is implemented in an interprofessional (IP) course using a hybrid model. It follows Kolb's experiential learning theory. Initially, asynchronous materials are completed, introducing SBIRT online through virtual simulations. These materials include PowerPoint slides, videos, readings, and interactive case studies for reflection and feedback. Synchronous components involve standardised patient encounters and clinical SBIRT experiences, where students actively participate, learn, and reflect. Weekly lessons and topics are followed by evaluations.<br>SBIRT is practiced in various healthcare and civic intervention settings, such as food banks, homeless shelters, health centres, and campus hospitals. Throughout the course, screening methods are used, and pre- and post-tests are used to evaluate students' topic knowledge. Virtual patient simulations (VPSs) are used in assessments to allow students to practise using SBIRT techniques. | SBIRT Interprofessional Course<br>(Week 1-14 and 30-day follow-up) | Students in health professions saw improvements in their ability to apply evidence-based practice because of the course. Content knowledge was delivered through online modules, while interprofessional education programmes' schedule constraints were mitigated by basic skills practice. Prior to using SBIRT procedures in actual clinical and community settings, further skill development was made possible through VPSs and encounters with standardised patients. Working in interprofessional pairs improved collaborative practice and improved students' attitudes towards patients and topic knowledge. |

| No. | Author, Setting | Purpose/ Outcomes | Target Audience | Programme development | Programme Developed | Key results that relate to the scoping review question/s |
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| **2.** | Anderson et al. (2016a)<br>United Kingdom | Give students the opportunity to participate in and think about interprofessional learning.<br>Learn about the dynamics that arise while working with multidisciplinary, interdisciplinary health and social care teams. | Undergraduate and graduate students | Constructivist learning theory guided the programme's design as well as its evaluation. Kolb's theory was included into the Leicester Model, which made it easier for students to participate in healthcare or community contexts. In accordance with predetermined learning objectives, students were given a pre-briefing before to interacting with in-patients who had complex needs. Students participated in reflective learning activities by accessing the notes and records of the patients. Thereafter, presentations and suggestions based on their evaluations were made.<br>To promote cooperation between educators and practitioners and reduce stress during patient care, efforts were undertaken to train educators and facilitators in the maintenance of knowledge and skills. Using their knowledge and abilities particular to the profession, the students conducted assessments of holistic health and social care, obtaining data from the practice team. Assessments, reflections, conversations, and report writing sessions were frequently scheduled during the afternoons. | Leicester model<br>(Short practice-based IPE)<br>Total of four IPE days. | The importance of theoretical learning approaches cannot be overstated, as they emphasise the need for clinical teams to support students and patient-centred teaching. To effectively prepare students for patient care, the article also emphasises the significance of organisational structures, which include higher education institutions, health and social care organisations, administrative assistance, and student assessments. |
| **3.** | Anderson et al. (2016b)<br>United Kingdom | Highlighted the value of longitudinal IPE by carrying out an extensive curriculum assessment to find discrepancies and improve comprehension of its applicability and underlying causes. | Undergraduate health and social care programmes of over 10 professions | The Biggs 3P Model, the Kirkpatrick typology of educational outcomes, and theories from cognitive constructivists were all integrated to create a framework. There were three separate strands that made up this structure. While the other two strands concentrated on practice-based learning, the first strand prioritised classroom instruction. Drawing from social learning theories, the first strand employed principles from sociology and psychology; the second included creating communities of practice; and the third integrated the Kolb learning cycle for student reflections. Students were required to complete and turn in Interprofessional Personal Portfolios after every IPL event. Student feedback, focus groups, interviews, and questionnaires were among the evaluation techniques used. | "Three strand Model" of IPL<br>(Four days of IPL) | The evaluation focused on recurrent topics related to students' experiences, facilitator skill, and challenges faced during the training process. Solving these problems required putting theoretical ideas into practice to improve understanding and remove obstacles to learning. |

| No. | Author, Setting | Purpose/ Outcomes | Target Audience | Programme development | Programme Developed | Key results that relate to the scoping review question/s |
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| **4.** | Bares et al. (2018)<br>United States of America | Didactic sessions offer an introduction to the principles and theory of IPE.<br>2) Opportunities for experiential learning are provided by clinical practice.<br>Goals: 1) Inspire students to consider and express their opinions and beliefs regarding interprofessional care for HIV-positive people.<br>3) Develop the skills required to provide interprofessional care for patients with HIV. 4) Gain experience assessing the success of interprofessional care teams. 5) Learn basic IPE theory through didactic instruction and evaluation of online resources. | Second-year advanced practice nursing students, second and third-year medical students, and fourth-year pharmacy students rotating through the HIV clinic. | In an HIV clinic, theory and practical application were combined to help students change their perspectives, learn new information, improve their abilities, and acquire firsthand experience with IPE. The programme was divided into two parts: Didactics, which included IPE sessions, web resources, and didactic content; and Clinical, which included cross-training, patient care, team rounds, group note-taking, and case studies, as well as assessments and evaluations. The programme placed a strong emphasis on hands-on learning. Open-ended and multiple-choice questions were used as part of the assessment process, and informal debriefings were also used. Student assessments using the SAW-IT instrument were used to evaluate how well interprofessional team dynamics worked. | Foundations of Interprofessional Communication and Collaboration (FIPCC)<br>(Clinical: 49.5 hours, didactic: 3.6 hours) | The curriculum placed a strong emphasis on experiential learning, which helped students gain a greater understanding of the roles that different professions play in providing care for HIV-positive patients. Students' assessments at the end of the rotation demonstrated that the rotation's goals had been successfully met. After the programme, self-reported feedback about the goal of interprofessional teams improved. All participants also pledged to continue practicing IPCP when the programme was over. The results demonstrated how well the clinic could be utilised to incorporate an IPE-focused curriculum, giving students the chance to see, practise, and assess the following: 1) the development of collaborative care plans; 2) the sharing of ideas and abilities; and 3) efficient teamwork. The course greatly increased the students' awareness of alternative careers and their desire to participate in IPCP after graduation. |
| **5.** | Bhattacharya et al. (2021)<br>United States of America | Encourage preparedness for the job. Give pupils the tools they need to work together and handle common geriatric issues. Give students the option to participate in providing geriatric care. Establish a collaborative atmosphere to replicate real-life situations. | Participants included residents from Family Medicine programs, medical students undertaking clerkships in Family Medicine, Nurse Practitioner candidates specialising in Adult Gerontology and Family Nursing, graduate students in Social Welfare, Occupational Therapy, and Psychology, undergraduates in Dietetics, as well as doctoral candidates in Physical Therapy and Pharmacy. | The programme's main goal was to streamline geriatric care, and TBL was mostly used in IPE activities.<br>The curriculum and programme were set in the first year, and then there was a 24-month curriculum. Teachers met once a month to maintain curriculum standards. Additionally, core faculty members recruited new members to the faculty to assist with curriculum development. After completing the prework, students did the iRAT and then the tRAT when class started. | Geriatrics Champions Programme<br>24-month programme repeated twice.<br>Four 2 and a half hour sessions were held yearly. | Students exhibited improved performance, highlighting the advantages of collaboration. The size of the team and its total efficacy showed a clear positive link, indicating that larger teams produced better results. Additionally, participants indicated a discernible improvement in their comprehension of the subject matter, as seen by an increase in their knowledge levels. Furthermore, the students demonstrated advancement in their interprofessional geriatric abilities, highlighting the need of cooperative learning opportunities for the development of comprehensive skills. |

| No. | Author, Setting | Purpose/ Outcomes | Target Audience | Programme development | Programme Developed | Key results that relate to the scoping review question/s |
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| **6.** | Branch-Mays et al. (2018)<br>United States of America | 1) Roles & Responsibilities: Promoted awareness of the many skill sets that support real IPC teams. 2) Interprofessional Communication: Acquired expertise in interacting and conversing with communities, families, patients, and other medical professionals, cultivating gratitude for their input. 3) Teams and collaboration: Introduced core ideas of true collaboration between many professions, acknowledging the significance of dialogue. 4) Values/ Ethics in Interprofessional Practice: Examined the developing idea of professionalism and interprofessional ethics as essential components of IPCP. | First year students: dental hygiene, dental therapy, dentistry, dietetics, healthcare administration, medical lab science, medicine, nursing, nutrition, occupational therapy, pharmacy, physical therapy, psychology, social work, speech-language-hearing, and veterinary medicine. | It is a required course for first-year students. Its learning objectives aligned with the IPCP core skills and included small group sessions led by course instructors. The programme concluded with an assessment using the ICCAS tool and facilitator and student assessments. The course's facilitator and student manual were indispensable. | Foundations of Interprofessional Communication and Collaboration (FIPCC) course (six two-hour sessions) | six subjects were covered:<br>1) The obligations and roles of healthcare professionals<br>2) Interactions and Health Systems<br>3) Collaboration and Interprofessional Teams<br>4) Health care workers' resilience and well-being<br>5) Professionalism and ethics<br>6) Empathy<br>Phase I of a three-phase programme is represented by FIPCC. Following Phase I's orientation to IPE, students go to Phase II, where they acquire the necessary skills for Phase III's interprofessional experiential or clinical activities. |
| **7.** | Browne et al. (2021)<br>United States of America | Examined the long-term impacts of two distinct approaches for giving IPE.<br>compared the attitudes of students towards interprofessional cooperation over time and between groups that had varying exposure levels to IPE. | For the IPE symposium - graduate students from Health Service Administration (HAS), nursing, OT, and clinical psychology (i.e., Psy.D.), as well as undergraduate students from nursing and social work<br><br>For the IPE course - graduate students from HSA, nursing, OT, counselling, clinical psychology (i.e., Psy.D.), and special education. | IPE was offered as a course for a semester as well as a symposium. Group 2 participated in both the symposium and the event. Group 1 attended the symposium. It was a given that the OT and HAS students used both approaches because of the nature of the approaches.<br>CBL was the symposium's main topic. Before the symposia, students were assigned a case and required to devise a course of treatment and intervention for the patient. The conference, which focused on people with dementia, ran for five hours.<br>The IPE course was an online, semester-long course that focused on CBL through simulated encounters. It was required for HAS and OT students and elective for everyone else.<br>A pre-test, post-test, and follow-up were carried out for the symposia.<br>Data were gathered using the Attitudes towards Health Care Teams Scale (ATHCTS). | IPE course and IPE symposium. | Engaging in both methods of instruction led to notable improvements in students' attitudes towards IPECP, highlighting the effectiveness of these approaches in fostering a collaborative mindset. Although the frequency of IPE activities rose, the effect on students' views was not statistically significant, indicating that the calibre of the learning process may matter more than its number. Students preferred in-person instruction over blended learning or online learning, demonstrating a preference for face-to-face engagement and experiential learning in IPE environments. |

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| **8.** | Cahn et al. (2018)<br>United States of America | To describe the structure that an organisation uses to combine various interprofessional and IPL activity components into a cohesive whole. | Graduate students from:<br>Nursing, occupational therapy, physical therapy, physician assistant studies, and speech-language pathology students | Students practicing IPEC competencies in a variety of contexts. There were five parts to the model: community, team, simulation, clinical, and classroom. During the first semester of the programme, students were separated into teams and introduced the central competences of IPEC in the classroom. As the semester progressed, students took part in and practiced with fictitious patients in simulation scenarios. To facilitate students' observation and reflection on collaborative care, an Interprofessional Dedicated Education Unit (IPDEU) was developed in a hospital for the clinical component. Students were given a novel with a sick protagonist as part of the community component. Discussions about the book and how an interprofessional team handled the illness took place at student orientation. In terms of the team component, the approach made it easier for various health centres to collaborate, giving students the opportunity to perform IPL and interprofessional care.<br>Faculty in every academic programme customised their courses to include assignments that are appropriate for evaluating students' capacity to work together. They determined the most important performance indicators for improved interprofessional skills in each semester. | IMPACT Practice<br>(Classroom: four times per term; two simulation scenarios; Clinical: two half day sessions) | A list of required and elective, theoretical, and practical IPE exercises was developed, enabling students to develop their comprehension of cooperative interprofessional practice. Additionally, it guarantees that IPE activities are applicable to various practice settings, allowing students to make real-world connections. |

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| **9.** | Chan et al. (2017)<br>People's Republic of China | Described the creation and application of IPTBL in Hong Kong's medical education system.<br>evaluated TBL's suitability for housing a sizable cohort of students participating in several undergraduate programmes in health and social care.<br>revealed findings from a review that evaluated the programme's efficacy.<br>What the students had to do was:1. Solving issues cooperatively.<br>2. Making roles, duties, and professional limits clear.<br>3. Exhibiting respect, exchanging viewpoints, and actively listening.<br>4. Assessing oneself critically to improve team chemistry.<br>5. Realising that improving patient care requires teamwork.<br>6. Being aware of one's own and other experts' points of view.<br>7. Recognising the importance of differing perspectives. | 801 students from HKU, six undergraduate-entry health and social care programmes participated: biomedical sciences, Chinese medicine, medicine, nursing, pharmacy, and social work.<br>From PolyU, another six undergraduate-entry health and social care programmes took part: medical laboratory sciences, nursing, occupational therapy, physiotherapy, radiography, and social work | Students' preparedness for IPE was assessed using a quantitative method using a pre-test-post-test paradigm.<br>Three TBL-centred instructional units (IUs) were introduced to students from a range of health and social care specialties in a clinical setting. Pre-class study, team appeals, iRAT, tRAT, feedback, in-class team application exercises, and online team application exercises were all included in the programme. Over time, an online platform was created and made available to all three IUs. Prior to in-person sessions, students had to go over a few materials and use the RIPLS to determine their level of IPE preparedness. | interprofessional team-based learning programme (IPTBL) – (three four-hour IUs) | Several difficulties surfaced during the creation and execution of the IPTBL programme, such as the challenge of integrating students from different programmes, the substantial time commitment needed for programme development, personalising the learning management system, and identifying appropriate locations for activities.<br>The IPTBL programme demonstrated its viability as a teaching technique for IPE engaging many students despite these obstacles. Notably, all four of the RIPLS subscales showed a significant improvement, demonstrating the beneficial effects of the IPTBL programme in preparing students for collaborative practice. |

| No. | Author, Setting | Purpose/ Outcomes | Target Audience | Programme development | Programme Developed | Key results that relate to the scoping review question/s |
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| **10.** | Danielson and Willgerodt (2018)<br>United States of America | Explained how a hypothetical framework for establishing and guiding curriculum design is evolving. | Pharmacy, social work, dentistry, physician assistant, nurse practitioners, nursing students | The first steps included developing a common IPL philosophy, lining up IPEC competences with the Kirkpatrick Model, and getting input from relevant parties. The next steps—contact, focus, integration, and training—were centred on student development with the goal of improving patient care and population health outcomes.<br>Step 1: Developed a unified philosophy for the students' participation in and understanding of the IPL. A group of core faculty members with experience developing curricula came together to study IPE accreditation requirements and harmonise curricula across different health sciences programmes and institutions.<br>Step 2: To promote the establishment of a common philosophy, common content elements were identified across health sciences curriculum and learning activities were devised to address these aspects.<br>Step 3: Using the Kirkpatrick evaluation domains, which were modified from the Kirkpatrick programme evaluation model, the Core Competencies for Interprofessional Collaborative Practice (IPEC sub-competencies) were mapped to provide a tangible framework based on the established philosophy.<br>Step 4: To resolve discrepancies, an iterative process was used with biweekly meetings. This allowed for discussion on the methods and rationale for the integration of competences into the Kirkpatrick levels.<br>Step 5: To guarantee alignment and efficacy, a comprehensive assessment of the framework was conducted with internal stakeholders. | The University of Washington's Health Sciences Curricular Framework for IPE includes three small group discussions in the second year (totalling six hours), shadowing activities (four hours), and three immersion experiences in the third year (totalling 12 hours). | Used pedagogy and learning theories as a basis to emphasise the value of IPE in developing thorough, effective, and meaningful curriculum, which guarantees that students are suitably equipped for teamwork in the delivery of healthcare. |
| **11.** | El-Awaisi et al. (2016)<br>Qatar | Highlighted the importance of facilitation as the key component of interprofessional teaching and learning, with implications for faculty and student preparation. | N/A | Step 1: Get started Step 2: Define the term, principles, and values.<br>Step 3: Create results.<br>Step 4: Determine participation and choose faculty and students Step 5: Choose themes.<br>Step 6: Work together to plan cases and activities and modify teaching strategies.<br>Step 7: Adjust education to the context.<br>Step 8: Encourage learning<br>Step 9: Try to create a positive learning environment and set high standards.<br>Step 10: Consider and consider suggestions Step 11: Evaluate the intervention.<br>Step 12: Broadly communicate the experience. | N/A<br>(12 steps to integrate IPE into the curricula) | The documents provided additional evidence that the successful implementation of interprofessional education courses depended on interprofessional student assessment and programme evaluation. A set of twelve guidelines was provided for incorporating IPE into the curriculum with the goal of improving practitioner and student education in the process of becoming skilled collaborators. |

| No. | Author, Setting | Purpose/ Outcomes | Target Audience | Programme development | Programme Developed | Key results that relate to the scoping review question/s |
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| **12.** | Fiske et al. (2021) United States of America | To give professionals the tools they need to treat patients with trauma awareness and manage exposure to trauma. | Graduate social work and undergraduate Nursing, and public health students | Adverse Childhood Experiences (ACEs) served as a framework for the development of the IPE course, which emphasises resilience as a dynamic process. A group of academics from several health schools worked together to develop the course, using an instructional design-based backward design methodology. With this method, assessments and outcomes are decided upon before any activities are created. For fifteen weeks, the course, which was worth three credit hours, met once a week in the late afternoon. It addressed issues such trauma prevention and care, ACEs and trauma evaluations, professional duties, and ethical requirements in the three professions, and self-care. As part of the course requirements, students worked together on group projects and wrote reflectively. | IPE for trauma-informed care (Semester-long course) | Students acquired valuable experiences conducive to working effectively in interprofessional teams.<br>Throughout the training, students were able to put resilience methods to use.<br>The training improved the pupils' abilities and knowledge. |
| **13.** | Friedrich et al. (2021) Germany | Students were supposed to be able to:<br>- Recognise the functions of different vocations.<br>- Share their thoughts and work together with experts in other fields.<br>- Find and choose pertinent content for medical treatment. | Paediatric nursing trainees and medical students | A thirty-minute exercise was created using the peer teaching approach in a training ward environment.<br>Two students from each profession took part in four sessions. Together, they chose a topic that was relevant to a clinical problem and developed a learning exercise that focused on elements unique to their respective fields.<br>A mixed-method approach was employed to collect data, employing semi-structured interviews and questionnaires. | Speed InterprofESsional Peer Teaching PaediAtric (SIESTA) | Students' understanding of roles and responsibilities as well as the development of their interprofessional competences served as evidence of the programme's value. |

| No. | Author, Setting | Purpose/ Outcomes | Target Audience | Programme development | Programme Developed | Key results that relate to the scoping review question/s |
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| **14.** | Forstater et al. (2019)<br>United States of America | Students will gain a variety of skills and information in this programme, including a comprehension of important patient safety and person-centred care concepts. They will gain the ability to spot chances to successfully use TeamSTEPPS® methods and resources in patient care environments. Furthermore, through simulated scenarios, students will acquire fundamental teamwork ideas and methods, readying them for collaborative practice in real-world healthcare environments. | 554 students from medicine, nursing, occupational therapy, pharmacy, physician assistant and radiologic sciences completed this programme | The flipped classroom approach and experiential learning techniques were combined in the Team SAFE curriculum, which was developed from the TeamSTEPPS® framework to train interprofessional learners in IPE. Initially, the students worked together in group online to develop pre-work abilities related to teamwork. Following three cases in which they used these skills to care for fictitious patients, each case was followed by debriefing sessions led by faculty members.<br>Eight-item quantitative pre-post assessments were given out on paper following the course and online for the pre-work. The PACT-novice instrument was altered to gather information on how well students believed they could collaborate with others in a team, as well as how well they could manage tasks, communicate, resolve conflicts, lead, and integrate ideas and information into team tactics.<br>To evaluate differences between professions at the pre- and post-levels, ANOVA tests were performed. Five quantitative and three qualitative questions measuring the course's efficacy, content relevance, and clinical experience were part of the post-assessment. Qualitative research asked students about their opinions of the course in a variety of areas. | Team SAFE (Simulation and Fearlessness Education) – (four simulation cases) | Students gained collaboration skills that may increase patient safety and advance their leadership potential. Important elements like teamwork, patient safety, and the reduction of medical errors were made possible by this skill development. |
| **15.** | Frantz and Rhoda (2017)<br>South Africa | Addressed the issues of IPE and IPP in areas with limited resources, such as South Africa, concentrating on the University of the Western Cape's (UWC) Faculty of Community and Health Sciences. | Physiotherapy, occupational therapy, social work, dietetics, exercise science, nursing, psychology, natural medicine, and public health | Implementing Boyer's Scholarship Model (1997) and adopting the biopsychosocial approach to drive IPECP in the establishment of a Unified IPE Framework at UWC. Boyer's paradigm places a strong emphasis on teaching, learning, integration, and application.<br>From Conceptualisation to Implementation: Using a biopsychosocial approach, collaborating, and utilising a variety of learning modalities while accepting different vocations within a same faculty.<br>Creating a Critical Mass: Showcasing the benefits and proficiencies of IPE via cooperative learning, evaluation, and real-world implementation. Basic IPE concepts were included into modules and events like world cafes throughout the first year. The following year brought IPP and aided in the growth of IPE comprehension. Ultimately, the third-year incorporated research components and concentrated on strengthening IPP comprehension. | IPE AND IPP<br>(Year one, two and three) | IPE and IPP were motivated by the same biopsychosocial approach, which was accepted by all faculty members, thus bringing their visions and objectives into alignment.<br>The faculty used a scaffolded strategy based on the six skills of IPE and IPP—interprofessional conflict, interprofessional leadership, ethics, values, effective communication, role comprehension, teamwork, and responsibilities—to solve hurdles.<br>To assist academics, clinical instructors, and service providers in overcoming obstacles and improving their comprehension of IPE and IPP, workshops were held. |

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| **16.** | Guilding et al. (2020)<br>United Kingdom | The study's goal was to plan and assess an IPE conference to provide guidance for the future creation of interprofessional antimicrobial education initiatives. The study sought to explore several topics, such as the use of contact theory in the planning of IPE activities, the knowledge, and skills that participants acquire through workshop participation, the identification of learning facilitators and barriers in each workshop, along with recommendations for improvement, and the function of the conference in highlighting the benefits of collaborative practice. | Undergraduate pharmacy and medical students | Faculty from the departments of medicine and pharmacy oversaw the conference coordination. The conference's design was informed by contact theory, which shaped the format of three small-group workshops based around three main themes. The purpose of these seminars was to incorporate interprofessional tasks that would call for cooperation and knowledge from both professions. To cultivate a secure and cooperative atmosphere, facilitators received specialised training that emphasised these elements.<br>A range of activities were part of the conference's educational strategy, which encouraged participants to actively learn. This method included two hours of CBL classes where students participated in discussions in groups. In addition, participants engaged in group video reflections and important event analysis for an hour, and then spent an additional hour using TBL techniques to create high-fidelity virtual simulations.<br>Several frameworks, including the Biggs 3P model, contact theory, and the Kirkpatrick educational outcomes model, were used in the development and execution of the conference's educational components to guarantee their efficacy and compatibility with the intended learning objectives. | IPE conference | The students developed their critical evaluation and problem-solving skills as well as knowledge and skills related to infection control. Throughout the process, their understanding of various responsibilities improved. Students understood the critical role that good communication plays in patient safety as well as their own self-assurance in cooperative teamwork. They also emphasised the intrinsic benefits that come from working in a cooperative team setting. |
| **17.** | Heath et al. (2019)<br>United States of America | The goal of this creative engagement project was to establish a link between IPE and clinical practice in underprivileged communities by means of an academic-clinical partnership with many health professions schools. The initiative created, incorporated, and assessed educational results from a new clinical service-learning endeavour with the goal of improving oral health instruction for primary school students while encouraging teamwork. | 113 students from dentistry, nursing, pharmacy, social work and communications and information. | A trial programme was started to improve general wellbeing and oral health. As part of their clinical practicums, students visited communities to learn about available health options and then wrote about their experiences. Reports on interprofessional communication during orientations were followed by discussions and reflections on their experiences. Pre- and post-surveys were used to evaluate IPEC competency improvements. Students were initially divided into teams and sent to different towns to research economics-related and community-related issues. Following the completion of community evaluations, teams discussed and shared their results over a "pizza and present" event. | hCATS (Health Colleges Advancing Team Skills) to Appalachia<br>(Two-and-a-half-day experience) | Students saw increases in their awareness of their own collaboration abilities and comprehension of community dynamics. Enrolment in the rural health clinic course improved interprofessional abilities. Effective clinical and collaborative practice can be facilitated by the learning environment that rural areas offer. It was noted that interprofessional communication plays a critical role in teamwork to ensure high-quality, comprehensive care. Furthermore, each team member's viewpoints, positions, and responsibilities were acknowledged, which promoted respect and an understanding of others' skills. Their knowledge of different health professions, the needs of the community, and how these affect patient care has increased because of the experience. |

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| **18.** | Herrera et al. (2019)<br>United States of America | Promoted IPL based on IPEC competencies and provided additional acknowledgment to students who made contributions to the programme. | First and second year osteopathic medical, second year pharmacy and first year nursing students. | The programme's goal was to advance IPL with IPP-level competencies. To integrate IPE activities into their respective curricula, an interinstitutional task force was formed. The IPE certificate programme was developed because of the themes that were identified as enabling student participation. Participating in IPE engagement activities, volunteering with different health professions, early clinical experiences (ECEs), and a reflection piece recounting the interprofessional team experience were all part of the plan.<br>The Programme was created by combining new course elements with existing requirements to lessen the workload for teachers, administrators, and scholars. Over the course of three years, the programme was delivered through cooperative, volunteer, clinical, and perceptive experiences. To coordinate the interinstitutional IPE efforts, each institution formed its own IPE group. Assessments were based on participation as well as rubrics developed around the learning objectives. An adjusted survey was used to gauge the knowledge and attitudes of the students, and a closing evaluation was used to evaluate the programme. | IPE Certificate Programme (offered over three years with eight volunteer hours). | Positive perceptions of the interprofessional field were identified.<br>This model assisted institutions of community-based health professions seeking to incorporate IPE. |
| **19.** | Ho et al. (2022)<br>People's Republic of China | Undergraduate students worked in teams to solve problems cooperatively.<br>investigated the opinions of undergraduate students majoring in physiotherapy and nursing after they had taken part in interprofessional activities. | Undergraduate nursing and physiotherapy students | A qualitative study methodology was employed to investigate the efficacy of the IPTBL technique. Students received their study materials one week prior to the IPTBL session. Teams of students conducted the iRAT and tRAT tests throughout the session following a presentation on a clinical experience. After that, the students were interviewed one-on-one, and the information obtained from these conversations was transcribed. Several important topics emerged from the analysis of the interview data, including the interprofessional learning process, results particular to a profession, and outcomes pertaining to patients. | Interprofessional Team-Based Learning (IPTBL) course | Students were enthusiastic and enjoyed the interprofessional experience, which helped them to create meaningful relationships. Consequently, the course of interprofessional learning, profession-specific conclusions, and patient-related outcomes emerged as the three key themes from their experiences. Activities involving interprofessional teams and learning were very helpful because they improved learning through interactions with peers from various disciplines. Furthermore, the cooperative connections that were made throughout these exercises increased the students' self-assurance in exchanging information and cooperating to provide patients with superior treatment. |
| **20.** | Ivarson et al. (2020)<br>Sweden | Observed how interprofessional learning was aided by the "Call the On-Call" activity. | Undergraduate medicine, nursing, physiotherapy, and occupational therapy students | Students worked together to complete training tasks in the wards. Students were divided into teams and the study used an ethnographic methodology during a two-week period. Three student teams would switch between the wards every two weeks. A nursing student would call a medical student during this period to seek advice on a medical matter. After that, the on-call medical student would re-join the group for a contemplative seminar about the Interprofessional Training Wards (IPTW). To facilitate human engagement, the exercise entailed telephone communication, and the call surgeon was observed. As part of the study, semi-structured interviews and observations were made. | Call the On-Call through the IPTW | Students acquired knowledge about new facets of professional tasks.<br>Pupils valued open and sincere communication.<br>Improved understanding of the difficulties that come with phone calls.<br>enhanced comprehension of the responsibilities in structured communication. |

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| **21.** | Konrad et al. (2017)<br>United States of America | improved the students' understanding of various roles and duties, put cooperation concepts into practice, refined their communication skills for individualised practice, and used knowledge cooperatively.<br>gave faculty and student input on campus-based preclinical interprofessional education programmes to evaluate and improve their relevance and efficacy. | Intended for pre-clinical undergraduate and graduate-level scholars registered in health professions training programmes, with osteopathic medicine, physical therapy, dental hygiene, occupational therapy, social work, dental medicine, nursing, pharmacy, and physician assistant. | The programme design integrated constructivist and relational learning principles by incorporating numerous PBL models along with CBL. Case-based learning sessions, realistic scenarios, and team-building activities were among the instructional modalities used. Assessments were done both before and after the session to see how the attitudes and behaviours of the pupils had changed. Rapid cycle programme assessment was used to ensure that the programme was continuously improved, leveraging student feedback to improve the overall experience. There were five sessions in the programme: planning, orientation, two simulation sessions, and a poster session. There were three main parts to every session: learning activities, facilitator responsibilities, and purpose and objectives.<br>The culmination of five consecutive small-group cooperative learning experiences was simulation sessions with standardised patients, which were followed by student presentations and supported debriefing sessions. Members of the local community were interviewed, chosen, and trained by IPTI faculty members to act out the scenarios. They had designated roles in each meeting and assisted as facilitators as well.<br>Two surveys were used to gather data for the student learning outcomes: one was given out two weeks prior to the programme's start, and the other was given out on the last day of the programme. | interprofessional team immersion (IPTI) – (five sessions) | The training programme raised students' awareness of various careers, gave them confidence in their ability to operate as a team, and made it possible for them to collaborate at work. Responses to the programme assessment confirmed faculty participation value in IPE learning activities and small teams, collaborative learning. For transformative TBL experiences, the programme offered shared material, instructional strategies, and evaluation plans. |
| **22.** | Krampe et al. (2022)<br>Germany | Evaluated Interpret2Improve's viability and looked at its consequences from the students' point of view. | Second- and third-year nursing and final year medical students | The Programme to Enhance Relational and Communication Skills served as the foundation for the curriculum's design (PERCS). Throughout the course, patients in simulations played the roles of both patients and family members. The intervention consisted of a three-hour session facilitated by a medical psychologist and a paediatrician teaching team.<br>After a theoretical overview, students worked in groups and had discussions. A practical exercise or simulation followed this, and a debriefing with feedback came last. Notably, the patient spoke in a foreign language during the exercise.<br>The Freiburg Questionnaire for Interprofessional Learning Evaluation (FILE) and PERCS assessment tools were used to evaluate the course's efficacy. | Interpret2Improve<br>Three-hour course | The intervention worked as planned and was well received. After the course, there was a discernible improvement in the understanding of the importance of interprofessional cooperation. Moreover, there was a noticeable gain in the ability to overcome language barriers.<br>Students showed that they could work well with interpreters and that they would be open to working with them in the future. |

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| **23.** | Kutt et al. (2019) Canada | Examined the effects of the CAM-stream IntD410 course on attitudes and education to determine whether it would be feasible to incorporate learning objectives for IPE and complementary therapies into the same course. | 329 undergraduate students enrolled in the programme | The core Health Sciences Education and Research Commons facilitated the coordination of over one thousand students to create a course that included PE ponding treatment learning objectives. The course included discussions on complicated cases, field trips, CBL, assisted small group discussions, didactic lectures, and reflective writing assignments. Pre- and post-test questionnaires were used in the course evaluation, in addition to qualitative evaluations. Students' attitudes towards learning alongside different professions were assessed using the updated Readiness for Interprofessional Learning Scale (RIPLS). Furthermore, IEPS was used to evaluate IPE activities, and the HPCCPS, which is based on CanMEDs, was used to analyse the pre- and post-intervention data. The CHBQ was employed to evaluate viewpoints concerning the integration of therapy. | IntD410 CAM "Interprofessional Health Team Development" Complementary and Alternate Medicine (30-hour, 10-week course) | Qualitative results showed that students remained to be enthusiastic about studying and showed an improved grasp of aligned therapies. They emphasised their dedication to patient-centred treatment while acknowledging the value of cooperation and communication. Students also understood the importance of IPE and how it relates to therapy. They discovered that providing patient-centred care requires a strong sense of teamwork, and they listed certain team competencies that they felt were critical, including time management, conflict resolution, and team-based problem-solving. Students also emphasised the importance of teamwork, clear roles, and efficient communication in attaining the best possible outcomes for patients. |
| **24.** | Madigosky et al. (2019) United States of America | In terms of student outcomes, they covered several important topics: First, as members of an interprofessional team, the students showed mastery in values, integrity, teamwork, and guaranteeing quality and security. Second, they demonstrated strong teamwork and the related abilities and attitudes required for cooperative practice. Thirdly, the team's diverse healthcare professionals' unique tasks and duties were effectively recognised and valued by the students. Finally, they developed a common, interprofessional identity by identifying with the values and norms of healthcare professionals who provide collaborative care. | First year students from anaesthesiology assistant, dentistry, medicine, nursing baccalaureate, pharmacy, physical therapy, physician assistant and public health programmes. | The Institute for Health Improvement (IHI) Open School, TeamSTEPPS®, and ethics all provided feedback on the course›s development. It contained iRAT and tRAT tests for assessment, and there were sixteen two-hour sessions total. In addition to introduction and debriefing sessions held following each session, facilitators received pre-training using the manuals that were supplied. Students received pre-work materials before the classes, and they had to complete assessments before and after. Students worked on application exercises, discussing moral dilemmas in case studies, and the sessions ended with a review and reflection time. The course's goal was to support efficient individual and group learning strategies through TBL. | Interprofessional Education and Development (IPED) – (15 TBL sessions of pre-work and 16 two-hour IPED sessions). | Improvements in interprofessional care, teamwork, acknowledging different roles and responsibilities, and developing a professional identity were all found in the study. The programme fostered the fundamental knowledge and abilities required for interprofessional practice, demonstrating the viability of implementing large-scale IPE within the framework of TBL. |

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| **25.** | Mastel-Smith et al. (2020)<br>United States of America | Examined how the training affected the students' knowledge, perspectives, self-assurance, empathy, and comprehension of those suffering with dementia.<br>Through social engagement, explicit learning experiences, and reflection exercises, one can enhance their knowledge, attitudes, empathy, and confidence. | Occupational therapy assistant, psychiatric mental health nursing, psychology, and pharmacy<br>students | The foundation of the college of pharmacy's Dementia Care Bootcamp was Social Cognitive Theory (SCT).<br>Following the formulation of study objectives and hypotheses, students were enlisted for the bootcamp.<br>Students finished the iRAT and tRAT tests before the start of each session.<br>During the bootcamp, team-building exercises like role plays and case studies were carried out.<br>A variety of quantitative measures were used to measure the different outcomes, such as the Dementia Knowledge Assessment Tool Version 2 (DKAT2), the Confidence in Dementia Scale (CODE), the Interpersonal Reactivity Index (IRI), and the Dementia Attitudes Scale (DAS).<br>A focus group was employed to gather qualitative data.<br>Students participated in TBL exercises that combined theoretical knowledge with real-world application. | Dementia care boot-camp<br>(16-hour team-based learning) | Improved attitudes, self-assurance, and dementia understanding were among the programme's outcomes, along with the growth of dementia care competencies. The training session effectively improved the attitudes, self-assurance, and dementia knowledge of the participants, which in turn helped them acquire the critical skills needed to deliver high-quality dementia care. |
| **26.** | Mcquown et al. (2020)<br>United States of America | To develop an IPE programme to teach geriatric fall prevention to undergraduate, graduate, and specialty health care practitioners. To guarantee the programme's efficacy, an evaluation of its ability to serve various student types and any modifications made in accordance with the Plan-Do-Study-Act model should be recorded. | Undergraduate nursing, nurse practitioner<br>graduate program, pharmacy, medicine, social work,<br>physical therapy, nutrition, and pastoral care | The instructional and Fall Risk Reduction Clinic sessions were organised using the Plan-Do-Study-Act approach, which also served as the basis for the IPE session. The primary teamwork curriculum for the children taking part in the clinic was TeamSTEPPS®. Every once or twice a week, patients were scheduled for a half-day session called the Fall Risk Reduction Clinic (FRRC). During this session, patients were presented to a comprehensive IP team that created personalised fall prevention plans that included medication recommendations, home modifications, outpatient referrals, and community resource access. A follow-up with the patient was done after the session to make sure the preventative strategy was being followed through on and was working. Open communication and anonymous paper questionnaires were used for evaluations, which promoted openness and helpful criticism. The ISVS was used to perform pre- and post-surveys to evaluate the session's impact and results. | Geriatric IPE session and FRRC | Students understood how important it is to look after senior citizens.<br>They learned from practitioners and derived value from seeing patients' presentations made by other students.<br>Additionally, facilitators learned about each other's special talents and approaches, which helped students understand the advantages of working in a varied team. |

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| **27.** | Prast et al. (2016) United States of America | The university recorded the process of accomplishing the objective of introducing IPE in a college for health professions. Improve students' understanding of different responsibilities in a range of patient care settings, encourage the growth of communication, and support the development of interprofessional teamwork skills. | Occupational therapy, nursing, social work, athletic training, exercise science, and medical laboratory science | The model of IPEC domains was utilised as a structure and incorporated into several health education programmes. A range of simulated experiences and activities were developed with the intention of improving communication, teamwork, and role comprehension. To improve IPC core competences, one such engagement comprised a case conference centred on a fake patient. The students were assigned to create a care plan for the patient, and they also created simulations in which team members were evaluated and assigned duties. Debriefing meetings were held after the simulations were over to encourage conversation and introspection.<br>In addition, instructors oversaw lab and classroom environments as well as resources to create several interprofessional simulations designed to improve students' capacity for productive teamwork. | Case conference and IPE simulations. | Sharing of principles and values, understanding of duties and responsibilities, ongoing improvement of interprofessional communication skills, and development of collaborative abilities are essential components of IPC patient care. The focus of IPE initiatives can be expanded to include population and community health.<br>According to an evaluation of the IPE events and simulations, students were able to further refine their skills in practice as they were able to effectively reinforce the development of these competencies. |
| **28.** | Rajiah and Mari Kannan (2016) Malaysia | Students clarified their places within their professions by articulating and identifying their respective functions. They gave an example of the value of fundamental communication abilities. Students showed outstanding communication abilities by working together as a team. They explained different duties and used their IT expertise to organise data from diverse sources efficiently. As a team, the students developed strategies and plans, assessed, and used communication principles, and recognised and investigated challenges within scenarios. | Undergraduate medicine, pharmacy, nursing, and dentistry students | The IPL activities included a variety of strategies to help healthcare workers develop their ability to collaborate and communicate with one another. One of the goals of these activities was to improve students' communication and understanding of one another through scenario-based learning. Students were encouraged to cooperate and work together on challenging healthcare problems through PBL workshops. Simulation resources such as audio-visual materials and facilitator guides were used.<br>Workshops emphasised the value of interprofessional collaboration in hospital environments. Controlled learning settings for students from many health disciplines were provided through the organisation of interprofessional active learning (IPAL) sessions. Initiatives for community-based education were vital in helping students develop their awareness of interprofessional clinical processes, the impact of cultural aspects on healthcare delivery, and team building and service learning. IPL seminars and practice sessions would be held where students would interact, learn about different roles and duties, and get helpful criticism from faculty members. To improve learning outcomes, collaborative activities like discussions, case studies, simulations, and problem-based learning exercises were also incorporated into the curriculum. These were followed by feedback sessions. Visits to the community were arranged, giving students the chance to work with specialists from many fields in real-world healthcare settings. The purpose of these trips was to increase students' understanding of interprofessional dynamics in healthcare practice and to provide them with practical insights. | Framework for IPL in India | To integrate IPCP into health sciences curricula, faculty members were expected to actively participate in IPE projects and hold conversations centred on collaborative practice with healthcare providers. The construction of a supportive climate, institutional backing, and the participation of academic personnel were critical to the development and upkeep of IPE initiatives across a range of health curricula. |

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| **29.** | Reed et al. (2021) Australia | Called for collaborative care approaches that would improve patient care and results by strengthening interdisciplinary communication and role comprehension. | Medicine, nursing, paramedicine, radiography, physiotherapy, and occupational therapy | Initiatives for rural interprofessional learning were incorporated into the curriculum; these initiatives included activities carried out in rural settings, including general practices, hospitals, and community settings. To replicate a patient's journey, students participated in simulated situations that showed several phases of patient care, from high- to low-intensity events, presented in a sequential manner. Students had group conversations after the facilitators created these scenarios. In the simulations, community members also performed as actors. A 15-minute semi-structured debriefing session employing a debriefing model was held after every simulation. A mixed-method assessment strategy was used, consisting of semi-structured focus group sessions and pre- and post-measures, to evaluate the efficacy of each learning event. Moreover, facilitators offered comments via post-surveys. | Rural Interprofessional Learning | Students showed that they had a better grasp of their own and other healthcare professionals' duties, which facilitated teamwork and clearer communication. The importance of collaboration in the provision of healthcare was acknowledged by acknowledging the combined influence of interdisciplinary teams on improving patient outcomes. Efficient communication was essential to enabling smooth collaboration between medical specialists. A significant focus on patient-centred care was noted by the participants, who recognised the value of include patients and carers in the decision-making process. |
| **30.** | Safabakhsh et al. (2018) Iran | Created a model for IP continuous education. | N/A | Three steps were involved in developing an interprofessional continuing education framework for another institution: conducting a systematic evaluation, interviewing specialists, and designing a model. The literature review and database searches that were conducted as part of the systematic review were used to find pre-existing models and extract pertinent data. Experts were then questioned to gain more information. Ultimately, the results of the systematic review and expert interviews were used to create the model. The interprofessional education programme's subject, objectives, content, learning methodologies, and evaluation strategies were among the many aspects that were integrated into the model. The interprofessional programme was divided into three primary parts: design, execution, and assessment. | Interprofessional education post-registration model | Key issues that were emphasised by experts included patient-centred care, community needs, learner requirements, responsiveness, and IPC. This strategy promoted the integration of IPE in clinical practice as well as educational settings. |
| **31.** | Schuller et al. (2017) United States of America | Improved understanding of students' experiences in a low-resource environment, promoting IPE and the recruitment and retention of medical professionals in marginalised areas. | Students from medical, psychology, dental, social work, nurse practitioner, and physician assistant professions with residents | Hands-on experiences in rural settings, students gained insights into the provision of interprofessional services in rural areas. Directed content analysis was used to examine 181 participant journals to find recurring themes. Three themes emerged: sensitivity to the needs of underserved and rural populations, knowledge of interprofessional collaborative dynamics, and comprehension of the healthcare issues in these places. | Health professions Students and Residents Experiences and Rotations in Community Health (SEARCH) – (four weeks) | Students could address healthcare problems in remote areas more fully and effectively through highly valued collaborative work. Students were able to report on the level of provider involvement in patient care because of their increased understanding of the many issues and shortcomings that exist in rural regions because of this experience. |

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| **32.** | Stubbs et al. (2017) United States of America | To assess the viability of incorporating IPE into modern environments and to improve students' collaboration and collaborative problem-solving abilities. It evaluated how a community-based programme affected students' capacity to participate in group problem-solving, adjust to team responsibilities, and acknowledge the importance of cooperation, especially while working with patients and other professionals. | 30 students from dentistry, dietetics, divinity, medicine, nursing, occupational therapy, pharmacy, public health, social work, and speech and hearing sciences. | The schedule included didactic lectures, warm-up exercises, and service-learning elements. A community organisation was paired with by six interprofessional student teams. Students took part in 11–14-hour training and team-building workshops throughout the preparatory phase. The 20–24-hour service-learning phase that followed comprised working directly with clients and solving problems together through focus groups, interviews, and conversations. Staff members worked together to build tools that addressed unmet requirements, and reflections and debriefings were held. Students' perceptions of group problem-solving, comfort in team-based tasks, and appreciation of teamwork were measured using the ISVS. | Community-based IPE programme – (didactic, preparatory, and service learning) | Initiatives in IPE that are rooted in the community may help improve cooperative and teamwork abilities. Students' perceptions of cooperation, comfort levels in roles involving teams, and capacity for cooperative problem-solving and decision-making were all improved by this programme. It was emphasised how crucial it is to train students in remote areas where they can gain experience in interprofessional learning while providing healthcare services. |
| **33.** | Teodorczuk et al. (2016) United Kingdom | Using Griffith's three-phase IP curriculum as a model, the authors suggested a useful manual for putting IPE into practice and laying its groundwork. | Students enrolled in nursing, clinical psychology, medicine, and social work programmes collaborated. Third-year medical students partnered with peers from various health disciplines, such as pharmacy, occupational therapy, exercise physiology, speech pathology, and dietetics. | Three-phase pedagogy, a framework consisting of three stages, was developed. The first part was learning about roles in different health professions and receiving theoretical instruction. CLEIMS (Clinical Learning via Extended Immersion in Multi-method Simulation) was used in the second round of workshops and simulations. In phase three, IPE ideas were put into practice in real-world contexts centred on patient care. There were two elements to the framework: box one dealt with CLEIMS, while box two provided guidelines for creating an IPE programme. | Griffith University framework of interprofessional education (IPE) activity | The framework provides a thorough how-to for creating an IPE curriculum. It highlights how crucial it is to set up an interprofessional advisory group, include IPE activities into current curriculum, define learning objectives, create realistic activities, supply helpful materials, train teachers, and carry out continuous evaluations. With this method, students are guaranteed to have engaging and productive interprofessional learning experiences, which will help them develop the cooperation, communication, and teamwork skills necessary for their future careers in healthcare. |

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| **34.** | Van Gessel et al. (2018)<br>Switzerland | A major advancement was the addition of a joint practice training plan, particularly through simulation. This three-module programme was carefully designed to accomplish several important goals. It sought to highlight the value of collaborative practice in healthcare delivery by giving students a thorough understanding of collaborative practice in a variety of healthcare settings, giving them useful tools for real-world application, and emphasising the impact of interprofessional skills on patient care and outcomes. | 1400–1500 students (nutritionists, physiotherapists, midwives, nurses, technologists in medical radiology, physicians) | To improve collaboration, two universities collaborated to create a thorough three-module IPE training curriculum that largely relies on simulation. The training, which lasted 300 hours, was presented in modules. In-depth study of the healthcare system was provided in Module 1, which also gave students the collaborative tools they needed to successfully navigate collaborative practice. To provide students with useful tools for professional practice, Module 2 actively involved students in learning activities that promoted comprehension of various roles and cooperation abilities. Ten simulation workshops, which were included in Module 3, which focused on care quality and safety, allowed students to recognise the substantial influence that interprofessional abilities have on healthcare outcomes by integrating them with patient care in a seamless manner. | The actual 3 module-8 European Credit Transfer System (ECTS)<br>Interprofessional programme.<br>Module 1: full week<br>Module 2: takes place over two semesters.<br>Module 3: Over one week | Thoughts regarding how to best develop interprofessional competencies at all educational levels, from baccalaureate to postgraduate, emphasise the value of seeing the "patient as a partner" in the process of making decisions. |

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