

IFMSA Policy Document

Interprofessional Education and Collaborative Practice

Proposed by Team of Officials

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Policy Statement

Introduction

Interprofessional education (IPE) is the learning of two or more professions with, from and about one another, aiming toward improved healthcare systems and patient-centered care. In contrast to the traditional approach in which health professionals work within their individual silos with little crossover communications, IPECP has been established to better the access and coordination of health services and outcomes. IPE is internationally renowned as a strategy to target the shortage of the global health workforce, which can enhance the collaborative work of different health professions. Therefore, healthcare students have an important role to play in ensuring inclusion of interprofessional education within their curriculum so that local and global healthcare needs can be better addressed, and clinical errors can be prevented.

IFMSA Position

The International Federation of Medical Students' Associations (IFMSA) acknowledges interprofessional education and collaborative practice (IPECP) as a key measure in improving patient safety, the expectation of patient care and health outcomes. IFMSA further highlights the role of IPECP in increasing the accessibility of health services for Universal Health Coverage (UHC) and in strengthening health systems to respond to health challenges effectively. We call on different health professions and educational stakeholders to support the policies, funding and training needed to develop, implement and evaluate context-specific IPECP.

Call to Action

IFMSA calls on **Governments** to:

- Support the development of context-specific health and education policies and frameworks with relevant stakeholders (e.g. medical schools and universities, student organizations, non-governmental organizations) to guide integrative IPECP programs and competencies.
- Allocate financial, technical, and logistical resources for developing, implementing, evaluating, sustaining, and researching IPECP programs. These include, but are not limited to, dedicated faculty time to IPE, alignment of academic calendars, facilities planning and design and joint affiliation agreements with health systems.
- Encourage accrediting and health regulatory bodies to include IPECP in their standards of quality medical education.
- Include IPECP in national strategies on health workforce planning to strengthen team-based healthcare systems and ensure medical schools' social accountability.

IFMSA calls on **Medical Schools and Universities** to:

- Include IPECP in education, research, and service priorities to be socially accountable.
- Initiate curriculum reform to create an educational culture that integrates interprofessional collaboration in everyday working, teaching and learning environments among staff and students.
- Support the planning, implementation, and evaluation of IPECP activities in classrooms, simulations, clinical, and experiential education settings.
- Provide adequate faculty development, capacity building and support while leveraging connections with other IPECP stakeholders to ensure representation and role modeling of interprofessional best practices by educators.

- Allocate the necessary resources and logistics to facilitate IPE curricular planning and oversight.
- Develop comprehensive feedback mechanisms for learners and educators to reflect on their experiences with IPECP for continuous program evaluation and improvement.

IFMSA calls on **Healthcare Students** to:

- Recognize the need and importance of collaboration with other professions encompassing different expertise to achieve safe, patient-centered healthcare.
- Advocate for meaningful student engagement in the curricular design processes and decision-making through effective partnerships with faculty and teaching staff.
- Advocate for inclusion of IPECP in the curriculum with opportunities for interactive and experiential learning through active initiation of discussions and activity planning with relevant stakeholders.
- Initiate, participate, and/or promote activities and discussions related to IPECP on local, national, and international levels.

IFMSA calls on its **National Member Organizations [NMOs]** to:

- Advocate for expanding faculty and preceptor development programs targeting an evidence-based approach to designing, implementing, and assessing IPE.
- Empower students and encourage their involvement within bodies responsible for shaping the medical curriculum to advocate for IPECP inclusion.
- Identify and develop partnerships with relevant stakeholders in advocating for IPECP.
- Develop interprofessional activities and clinical opportunities to increase the exposure of healthcare students to other professions.

IFMSA calls on **Non-Governmental Organizations [NGOs]** to:

- Identify and modify areas in existing institutional policies to create opportunities for collaboration with other professions
- Develop and share resources such as best practices and guidelines that can advise evidence-based inclusion of IPECP in the medical curriculum.
- Create platforms to promote intersectional dialogue and information exchange between healthcare organizations for IPECP development, implementation, and evaluation.
- Include experts and students from different professions when developing IPECP campaigns, courses, and other interprofessional initiatives.

IFMSA calls on **Healthcare Service Providers** to:

- Take on the role of a collaborator within the working environment to support and foster interprofessional teamwork and communication.
- Promote and support trust-based relationships and exchange respectful communications with patients, families and team members for collaboration on patient-centered care.
- Support the development and delivery of interprofessional experiential education programs that demonstrate educational and patient care outcomes by taking on the role of an educator in the clinical setting

Position Paper

Background Information

While IPECP has been around for many years, policymakers have increasingly realized the need for integrative health and education policies on IPECP to strengthen health systems [1,2]. In 1972, challenges related to health workforce shortages and comprehensive primary care needs prompted the Institute of Medicine to call for faculty development on educating healthcare students as teams through “interdisciplinary education” [2]. According to Brandt’s [2] discussion on Kane’s work, since the collaboration at the time mainly focused on disciplines within the medical profession, a publication on “interprofessional teamwork” was published in 1975 to represent the shared decision-making responsibility among professionals. Fast forward to 1987, and the Center for the Advancement of Interprofessional Education (CAIPE) proposed the widely accepted definition of IPE, which was also adopted by the World Health Organization in 2010 [2]. They stated that IPE occurs when “*two or more professions learn about, from and with each other to enable effective collaboration and improve health outcomes,*” with professionals defined as “*individuals with the knowledge and/or skills to contribute to the physical, mental and social well-being of a community*” [1]. Recently, the National Center for Interprofessional Practice and Education updated the term “interprofessional practice and education” to represent the intersection of IPE, interprofessional practice, and collaborative practice with a focus on supporting “*people - including health professionals, health workers, students, residents, patients, families and communities – to learn together every day to enhance collaboration and improve health outcomes while reducing costs*” [3]. IPE is necessary to prepare a collaborative-ready health workforce that can effectively address complex health challenges, respond to population health needs, and strengthen health systems [1]. Interprofessional collaborative practice (ICP) occurs when health professionals from different expertise work with patients, families, carers, communities, and any individual with the relevant skill sets to deliver high-quality care and achieve context-specific health goals [1]. Evidence has shown that ICP improves the accessibility of health services with higher patient satisfaction and outcomes, as well as reduced clinical errors and patient complications [1]. Thus, implementation of IPECP can be effective in addressing concerns of global health workforce shortage, patient safety and handovers, and complex health challenges within the appropriate context.

The Interprofessional Education Collaborative has identified core competencies for ICP. While the 2023 competency updates are yet to be released, the intention is to further build on existing competencies to improve the patient care experience, better population health, reduce healthcare costs, and include aspects of student and provider self-care improvement, health equity advancement, and one health principles. The four core competencies mentioned in the 2016 version are as follows [4]:

- **1) Values and Ethics for Interprofessional Practice:** High-quality patient-centered care and policies through trusting relationships and collaboration with patients, families, and team members, integrity-based ethical decisions, competency in one’s professional role, and respect for promoting health equity [4].
- **2) Roles and Responsibilities for Collaborative Practice:** Clear communication of healthcare professional roles within the team to utilize each member’s expertise to the fullest and to recognize the complementary skill sets and interdependency of members in optimizing population health and patient care while acknowledging limitations [4].
- **3) Interprofessional Communication Practices:** The usage of practical, understandable, and respectful language, active listening, and feedback to communicate with patients, families, community members, and health team members to ensure a common understanding of

information, treatment, care decisions, and population health programs and policies [4].

- **4) Interprofessional Teamwork and Team-based Practice:** Adopting evidence-based team practices for team development to manage disagreements constructively and to have shared accountability, ethical principles; and integrative patient-centered and population-focused problem-solving [4].

Discussion

IPE in the Curriculum

The concept of IPECP has evolved continuously over the past few decades, driven by concerns about quality assurance of healthcare, preventable mortality, and the ability of healthcare workers to meet the diverse needs of an aging population. According to the California Baptist University Framework for IPE Curriculum and Core Competencies [5], learners should be introduced to knowledge-based information on interprofessional communication, teamwork, and the roles and responsibilities of different health team members through overlapping topics across different health professions. Further, IPECP competency can be developed through active learning methods such as simulations, problem-based learning, clinical internships, and community-based service learning [5].

The IPE curriculum needs to consider that learning is often influenced by students' interaction with the instructional environment, including the activities and the interprofessional groups or communities of learners. The socio-cultural environment enables students to appreciate alternative and consistent views and perspectives on patient care from various healthcare perspectives, which fosters reflection of their knowledge and professional philosophies [6]. This can help create a sense of collective belonging to the healthcare community, promoting a cohesive vision for the patient and family-centered care in all the case-based contexts. In addition, social, collaborative problem-solving encourages personal interpretation and reflection on learning. It facilitates a shift in the learner's role from a passive recipient to that of an explorer, producer, communicator, and collaborator [7-9]. The students will spend their professional careers collaborating and working with clients, families and other healthcare team members, so learning within a socio-cultural context is imperative.

Knowledge is also constructed as students actively participate in the instructional activities before and during the IPE activity. The constructive cognitive process is triggered through selected instructional methods (e.g., case-based contexts, self-directed online modules followed by reflective written responses, interactive group discussions and simulation center experiences). Active learning is enhanced by matching learning needs to the instructional context (e.g., interactive seminar, small group interactions, simulation), the activity (e.g., role play, problem-solving through group rotation, reflective discussions, simulation with standardized patients and professionals), and the learning outcomes of each IPE activity [10]. And by matching the needs to the outcomes, would put the focus on IPE competencies and an evaluation process to assess student learning outcomes following the implementation of each IPE course [6]. A standardized online evaluation should be implemented following each IPE course to assess the student's perception of their learning, attainment of the learning outcomes, and satisfaction with the IPE instructional activities. A suggested framework for establishing and developing IPE within the curriculum is to make it a competency-based approach depending on the four major ICP competencies mentioned by the Interprofessional Education Collaborative [5] on values and ethics, roles and responsibilities, communication, teams and teamwork; each is evaluated based on knowledge, skills, and attitude indicators.

Open Education

Open Education (OE) is a movement about how people should produce, share, and build on the knowledge, with its foundation being in OE resources. Over the last two decades, OE has become a central theme in academic conversations about pedagogy and equity worldwide as it seeks to honor all voices. The recent pandemic brought a new interest in open education since it highlighted the importance of equal access to resources and the prevalence of barriers. Beyond OE resources, the OE era includes the lands of open pedagogy and open learning.. Currently, not many studies bridge the connection between IPE and OE, as it is still a novel area within the field of education. However, it is an inevitable destination the world is heading towards with time. The connection between the two fields means creating open access resources for IPE by students, faculties and scholars to be fully accessible for everyone interested in implementing the IPE framework within their work field, whether it is a curriculum or putting interprofessional work regulations and manuals. The urge to link IPE to open education emerges from the fact that IPE is a work underdevelopment, and opening the relevant experiences, studies and resources of IPE will decentralize its progress and accelerate its development worldwide [11].

Experiential Learning

Until now, most experiential-based IPE initiatives occur in a naturally occurring, non-deliberate fashion. Experiential IPE with non-physician healthcare professionals is often not integrated into their training until clerkship. Evidence supports that most students can identify the roles of their profession relative to others early on in clinical settings, so this is no reason to delay IPC exposure until later training. Research also affirms that IPE can shape student attitudes and perceptions about other healthcare professions. This is especially critical during early training. Most IPE programs include passive lecture-style teaching methods during pre-clerkship and focus on student-to-student interactions from various health professions. That said, two published American studies from the University of Vermont and the University of Michigan were found whereby first-year medical students shadowed nurses. Both of these studies demonstrated positive interprofessional outcomes, including enhanced knowledge of the nursing profession, understanding of the importance of interprofessional communication, and improved medical student attitudes toward nurses [12].

Strategies for Implementation of IPE in the Curriculum

The goals of IPE and the students' interprofessional competency support can be achieved by optimizing and integrating learning activities into the entire length of the existing curriculum [i.e., from classroom-based to clinical/experiential-based IPE]. Learning with students from other programs is critical to the success of the IPE, as students of one profession learn from another. A student may be on the same campus or at one or more collaborating institutions designing IPE that reflects the current or future student's practice. When matching a student to participate in a particular IPE learning activity, consideration should be given to the student's developmental level and how the student will work together to achieve the goals and objectives for their learning level. IPE plans require a coordinated strategy for assessing learners' development and mastery of interprofessional collaborative practice competencies and evaluating the implementation and immediate impact [13].

IPE & Research in Medical Education

Particularly in light of the global rise of IPE programs, it is crucial to examine underlying evidence, validity, and effectiveness of IPE [14] and to create guides and frameworks based on scientific principles. There is international recognition of the importance of strengthened expertise and knowledge in IPE through evaluation and research [4]. Several challenges must be taken into consideration, however. For example,

IPE does not represent a coherent idea but at least two different discourses with their backgrounds and concepts [15]. Furthermore, there needs to be more objective measures and control groups in IPE studies [15]. In 2010, WHO published the Framework for Action on Interprofessional Education and collaborative practice to share best practices and implementation strategies [1]. The development of such a framework was only possible because of earlier local projects in IPE that generated uneven and culture-specific advancements [16]. However, more than the results of single studies' results are needed [17]. Comparative evaluations of different practices allowing researchers to recognize successful program elements still need to be made available [15]. There is a need for systematic reviews, a consideration that the review design must be based on educational studies, not biomedical and health science topics, and demonstrate existing effects [18]. These can then serve as an evidence-based foundation for the sustainable development and implementation of national and international programs. For this purpose, clear learning objectives must be defined, and appropriate methods must be selected and evaluated based on the relevant research findings [19]. Developments in educational research on IPE have led to the introduction of journals such as the German International Journal of Health Professions and the Journal of Interprofessional Care, which focus on and foster research on IPE [16]. Furthermore, organizations like the Global Research Interprofessional Network have been found to advance global IPECP research [20]. While there has been a larger emphasis on research in the field of IPE, there is still a need for further insights, especially from non-Northern American institutions. Future medical education research should focus on evaluating the effectiveness of interprofessional teaching models by objectively measuring short- and long-term students' behavioral outcomes and patient outcomes by creating and using a well-defined assessment framework [15].

IPE in Accreditation & Quality Assurance

Ensuring and maintaining quality in IPE is intricate due to the complexity of IPE development, implementation, and evaluation, the lack of knowledge exchange regarding other professional standards, and the need for a shared model for organizations related to IPE accreditation [21]. Accreditation standards encompassing the topic of IPE have been found to enable further development of the implementation and curriculum of IPE. However, these standards have proved challenging to translate into a national context for implementation. To increase the IPE quality, more research must be conducted to evaluate whether the standards bring forth a change within students and promote the interprofessional and collaborative practice. Accreditation standards also incentivize procuring a better form of IPE [22]. For these standards to be implemented, there needs to be a collaborative effort from all key partners in the health practice sector to assess and evaluate the current services, to procure the services they envision for their communities, to experience as well as review these standards for further developments, and to ensure continuity and growth of IPE and collaboration in healthcare systems worldwide [23]. Recent developments in accrediting the quality of IPE include a report that guided institutions on implementation by the Health Professions Accreditors Collaborative [24] and the Accreditation of Interprofessional Health Education project in Canada that aims to embed IPECP for better patient-centered care [22]. Thus, healthcare students have an important role to play in advocating for the need for IPECP inclusion in accreditation standards.

IPE & Social Accountability

The demand for quality health services has grown along with population needs and scientific advances [25,26]. Interprofessional teams can offer a holistic response to patients' health needs and better continuity of care, leading to improved health outcomes [16]. Social accountability in medical schools is a way to direct the teaching, research and services to the health concerns of the people they serve [27]. For comprehensive health care for the population, the most diverse health professionals must work

together, using their knowledge and skills [28]. A systematic review and meta-analysis identified positive outcomes of IPE course development within the curriculum in improving students' knowledge, skills, and attitudes toward collaborative teamwork [29]. Healthcare students need to have meaningful engagement through social accountability in order to accomplish IPE. For example, we can cite some Brazilian Family Health Care Residency Programs which united undergraduate students of various professions as interprofessional teams under the supervision of a field mentor. The strength of IPE in Brazil comes from its alignment with the principles embodied by the Brazilian Unified Health System [16]. The Nelson Mandela University in South Africa has an initiative named Zanempilo Mobile Health Education Platform, where interprofessional healthcare students and faculty members deliver health services with socially accountable learning goals related to developing attitudes, skills, and relationships. Those are anticipated to be used as curricular objectives and competencies [30]. Thus, the literature suggests that high-quality interprofessional primary care services are the future of medical and health professionals' education. Institutions must recognize their communities as learning spaces and support social accountability principles in medical education [26].

IPE & Universal Health Coverage

The push for Universal Health Coverage (UHC) remains a priority targeted by nations adopting the 2030 Sustainable Development Goals (SDGs). However, the COVID-19 pandemic has created cracks in already struggling healthcare systems, which serve as a reminder for governments to adequately fund, support and better distribute healthcare service providers in the community[31]. The lack of opportunities for collaborative practice has made it difficult for healthcare service providers to address workload issues [32], disrupting essential services by as much as 92% of countries globally [33]. The World Health Organization (WHO) cites a gap of 18 million healthcare workers necessary to achieve UHC in low and lower-middle-income countries to be distributed across communities, especially in hard-to-reach areas, despite efforts made during the pandemic [34]. Inequalities remain a significant obstacle in building a sustainable health workforce within nations. Available data reflect the national aggregate numbers of the health workforce but fail to express within-county inequalities currently experienced by communities most in need of UHC [35]. As the world transitions to a health system more resilient to emerging diseases, there must be a recognition of the importance of strengthening healthcare service providers at the community level in establishing UHC. The need for innovative solutions through closer collaborations during the pandemic has further shown the positive impact of pushing for inter- and transdisciplinary education in preparation for a workforce more adequately prepared to deal with health issues [32].

Mounting evidence suggests how interprofessional healthcare teams are better prepared to maximize their skills and manage cases conjointly to provide safe healthcare services and improve patient outcomes. During the COVID-19 pandemic, interprofessional collaborative practices became essential in meeting demands presented in inpatient ICU cases, quarantine centers, surveillance, and research [36-38]. Much of this evidence, however, comes primarily from high-income countries with little known about the distinct challenges and strategies present in low- and middle-income countries [39]. This opens many opportunities for low, and middle-income countries to perform and apply research on interdisciplinary practices similar to a practice done by Lecky, et al. [40]. Despite clear indications that IPC could contribute to achieving the triple aim for health systems, namely improving the patient care experience, advancing the health of populations, and reducing per capita costs of care, several factors need to be considered and reflected upon. Such factors include power and hierarchical differences, personal values and beliefs, organizational resource constraints, and the silo system in care culture [35]. These limitations, however, present unique approaches to achieving UHC that could be tackled through medical education. Promoting collaborative practices has improved healthcare service providers' service

delivery and outcomes regarding efficiency, responsiveness, innovation, and creativity [32,35].

Most importantly, as the world shifts towards more preventive measures in primary health care, governments should create strategies to contextualize how collaborative practices would be effective and sustainable. Each community within every country presents a unique context which would also create unique problems in achieving UHC. Ignoring these problems allows the cultures of healthcare students to grow farther apart and exacerbates the gaps between the university and the workplace in terms of IPECP practices [41]. Teamwork in healthcare service providers must be emphasized and contextualized as early as possible in the nation's formative education.

IPE & One Health

According to the One Health High-Level Expert Panel [42], One Health (OH) is defined as "an integrated, unifying approach that aims to sustainably balance and optimize the health of people, animals, and ecosystems." This approach calls for partnerships intersecting different levels of society, background, and disciplines in recognition of the interdependence of human, animal, plant, and environmental health [42]. The COVID-19 pandemic has further emphasized the importance of OH for an international collaborative approach to managing infectious zoonotic diseases in an increasingly globalized world [43]. Animals often serve as sentinels for human health due to shared common health risks related to environmental hazards [44]. The active inclusion of animal health experts in informatics working groups also helps improve zoonotic surveillance and data linkage between humans and animals [45]. However, the transdisciplinary approach of OH is not limited to infectious disease outbreaks and pandemics. Overlaps in human and animal health call for consideration of history taking that includes animal contact and pet history for those who share a domestic setting with household pets [44]. Human and animal health experts should also be aware of the human-animal bonds' mental and physical health impacts and compare disease management best practices for diseases applicable to humans and animals [11]. Additionally, our relationship with the environment has resulted in changes to biodiversity and ecosystems, leading to health impacts due to challenges such as food insecurity, weather changes, air pollution, and antimicrobial resistance [11]. Thus, the interaction of different expertise is crucial in approaching health through a systems framework that considers the health systems of humans, animals, and the environment [11].

It is important to note that the goal of IPE related to OH is not for learners to specialize in all areas but to be knowledgeable in their roles and skill sets to effectively collaborate within a multidisciplinary team to address complex issues [46]. Increasing efforts to incorporate IPE in the curriculum related to OH have been seen worldwide. Students from the Tufts University Cummings School of Veterinary Medicine and School of Medicine and the University of Pennsylvania School of Veterinary Medicine, and Perelman School of Medicine have initiated applied sessions on comparative anatomy to create interprofessional learning opportunities through initiatives such as the Comparative Anatomy Exchange Day, An Interprofessional Tufts One Health Event and Penn Inter-Health School Anatomy Exchange [47]. Furthermore, The Association for Prevention Teaching and Research Healthy People Curriculum Task Force and the Association of American Veterinary Medical Colleges have collaborated on an OH IPE Working Group to develop an educational framework that engaged faculty members in creating interprofessional case studies for use in health professions education [48]. Medical and veterinary students from the UC Davis School of Medicine have collaborated on a free OH Clinic servicing their community, including a high population of domestic animals [49]. Their monthly clinics and joint rounds acknowledge the need for open communication and clinical collaboration between medical and veterinary teams to exchange knowledge on recent sentinel events, zoonotic disease prevention, and

environmental and animal impacts on health [49]. OH principles can also be explored through clinical electives at veterinary hospitals, zoos, conferences, and symposiums that bring together physicians, veterinarians, non-governmental organization leaders, public health officials, and government representatives [44,50,51]. The Georgetown University School of Medicine has also formed an OH Infectious Disease Interest group with physician and veterinarian guest speakers and the creation of an OH Club [51]. While there are many ways to approach IPE in an OH context, the examples above may be a source of inspiration and guidance towards creating IPE OH initiatives that are context-specific and relevant to a population's needs.

It is important for medical students as future health care professionals to acknowledge the importance of collaboration among professionals in better understanding and addressing diseases impacted by the influence of the environment and animals. Therefore, the successful implementation of IPE in the curriculum is a possible approach to broaden the understanding of the One Health idea and make them aware of the impact on their future work.

Impact of COVID-19 on IPE and its Transition into Post-Pandemic Times

The COVID-19 pandemic has significantly influenced the normal operations of all human affairs on a global scale. Indeed, the pandemic has considerably impacted the delivery of medical education to pre-clinical and clinical year students worldwide. In response to the escalating case fatality rate due to the pandemic, there has been widespread termination of clinical placements, face-to-face teaching sessions, and examinations that require a physical presence by students, professors, and patients. It was hoped that the cancellation of the formerly mentioned activities would significantly reduce the exposure of medical students to the coronavirus; however, the consequences posed substantial issues for the learning experience and professional development of medical students. One such issue is the transition of the delivery process (planning and implementation) of Interprofessional Education during the pandemic in terms of the mix of students, duration of IPE sessions, the learning activities applied, and the facilitation methods from face-to-face into remote teaching and learning. Distance learning during the COVID-19 pandemic requires medical education institutions to restructure IPE learning concepts and seek new strategies for implementing collaborative teaching and learning processes. One of the implementations of IPE learning during the COVID-19 pandemic is through virtual simulation utilizing the telemedicine service system [52].

In a global case study, it was highlighted that virtual encounters with students from other healthcare professions are not perceived as sustainable and additional consideration must be given to the duration of IPE, as online sessions were mostly shorter than face-to-face sessions. However, at the same time, it was more time-consuming in terms of preparations at the beginning due to the students' and facilitators' different levels of digital competencies. While there was technological support from the facilitators, students had to adapt independently to their new learning environment, which increased accessibility problems for students [53].

As such, the pandemic revealed the breadth of the digital divide and widened inequity in accessing services, technology, and distance learning in a global society, with only 60% of the global population having online access [54,55]. In addition to the challenges mentioned earlier, the abrupt transition to virtual healthcare and distance learning, along with the COVID-19 restrictions, impacted healthcare professionals' and students' health. Over 80% of healthcare professionals and over 70% of college-level students report experiencing anxiety, stress, and/or burnout [56-58].

Digitalization of Education

Distance learning during the COVID-19 pandemic requires medical education institutions to restructure

IPE learning concepts and seek new strategies for implementing collaborative teaching and learning processes. A recent review of 55 articles that used information and communication technology to deliver IPE found that learners responded positively to these new methods and experienced positive attitudes and knowledge changes related to collaboration. While this review provides valuable evidence to support the potential effectiveness of the online delivery of IPE for learners, there needs to be more attention placed on examining the role of the facilitator in this process. Online learning can be both synchronous and/or asynchronous. Hybrid learning combines online and face-to-face learning, synchronous and asynchronous activities. Research supports that learners may prefer synchronous delivery because it helps foster interaction and connection between learners and facilitators. The benefits of asynchronous methods include allowing learners to repeat online activities and materials at their own pace and follow guided instructions. Professional development and mentorship for online IPE facilitation have been identified as integral for collaborative learning and fostering a community of critical inquiry. It can be challenging enough in on-campus learning environments and comes with unique challenges in online and interprofessional contexts [59]. Implementations of IPE learning during the COVID-19 pandemic have also developed as virtual simulations utilizing the telemedicine service system. E-learning is appealing for IPE as it addresses the geographic and timetabling barriers often encountered when organizing activities across educational programs.

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