

Narrative Review



# Optimizing interprofessional education: Integrating a portfolio-based approach in undergraduate curriculum

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## Abstract

**Background:** Interprofessional education (IPE) is the need of the hour for any undergraduate curriculum to build interprofessional communication skills, adapt teamwork, and role clarity of various healthcare professionals in the early stage of a learning period. The outcome will improve patient safety and quality of care through a holistic approach by addressing lacunae in interprofessional collaboration.

**Objectives:** To describe the steps to implement the IPE curriculum and evaluation of learners' activity through an IPE portfolio.

**Results:** Sensitization of IPE curriculum among various health professional faculties, and students. Develop core team facilitators, and construct lesson plans and assessments. The IPE portfolio will be used as a reliable and effective tool for formative assessment including authentic, real-world examples of learner's work.

**Conclusion:** This paper communicates undergraduates' reflection practices in patient care stimulate critical thinking, deep and lifelong learning, and, facilitating from novice to mastery levels are achieved through integrated and aligned with IPE curriculum and portfolios-based assessment tool.

## Introduction

Health organizations worldwide implemented a universal interprofessional education (IPE) plan in 1988. IPE is defined as "Occasions when members or students of two or more professions: learn with, from, and about each other, to improve collaboration and the quality of care and services." The Centre for Interprofessional Education (UK) Definition (2002, modified 2017)

IPE is a firmly established necessity for health and social care professionals to possess a set of skills that extend beyond their curriculum. In many medical educational systems worldwide, undergraduate education is inclined to operate within silos, with each profession conducting its teaching-learning activities (WHO 2010). This isolated approach often results in healthcare professionals graduating with limited interprofessional communication, collaboration, and teamwork performance skills, hindering their ability to adapt to challenges and respond adequately to patients' healthcare needs. The importance of IPE arises from the fact that coordination of various

healthcare services is essential to meet the manifold requirements of patients and reduce medical errors, and hospital readmission rates, ultimately supporting the achievement of the Triple Aim of healthcare<sup>1,2,3</sup> (Figure 1).

## Needs of IPE in undergraduate curriculum

IPE programs in the UK and US-based medical centers are committed to achieving health care improvement. This initiative has been adopted by different universities, professional associations, and healthcare institutions, who also address the need to provide IPE for their learners.<sup>4</sup> An interprofessional collaborative approach enables students to understand each other's roles, standpoints, and contributions to patient safety and the quality of care. The establishment of IPE should be in line with ethical principles, emphasizing the importance of integrity, respect, and professionalism. Novices should learn to acknowledge the ethical dimensions of interprofessional collaboration, including patient confidentiality, shared decision-making, and cultural capacity. IPE programs

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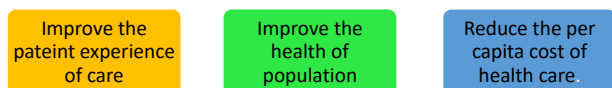


Figure 1. Interprofessional competencies will achieve the above triple aim

reinforce early learning experiences (pre-qualification stages) throughout their career diminishing the negative effects of professional isolation like hostile stereotyping, and improving post-qualification work practices.<sup>5</sup> IPE should include experiential learning methods, such as simulated patient care scenarios, blended learning, shadow learning, problem-based learning, collaborative projects, and interprofessional training programs. These activities provide students with the hands-on experience to apply interprofessional skills and enhance their critical thinking ability to work together in real-world health and social care settings.

Assessment methods in IPE outcomes should be mapped to evaluate both individual and team performance. This may include peer assessments, self-reflection, and opinions by faculty members. Regular feedback can help students realize their strengths and scope for improvement in interprofessional collaboration.<sup>6</sup>

### Implementation at health care institutions

Interprofessional Collaborative Competencies (IPEC 2023) updated four core competencies as an integral part of interprofessional collaboration and emphasized that patient and family-centered care should be provided keeping in mind the needs of the community and population. The four core competencies are (1) Roles & responsibilities for collaborative practice, (2) Values/ethics for interprofessional practices, (3) Interprofessional communication practices, (4) Interprofessional teamwork and team-based practice.<sup>1</sup>

The development of interprofessional collaborative competencies developed both by IPEC and the Canadian Interprofessional Health Collaborative (CIHC, 2024) is important to move out with profession-specific educational efforts to engage students of different professions in interactive learning with each other. At the level of tertiary care, most institutes have more than one course, and easy to implement the experiential learning of IPE. The objectives of IPE activity can be achieved from the time of diagnosis, investigations, treatment, and prevention of chronic and acute diseases, which require the collaborative efforts of various health and social care workers. Undergraduate teaching institutions specially focussed on healthcare education have the responsibility to teach and train students to respond to challenges and patients' healthcare needs in a collaborative working environment. The progression pathway to achieve the IPE goals is explained (Figure 2).

### The steps to implement IPE at the institutional level

The learning phases of the IPE curriculum for health

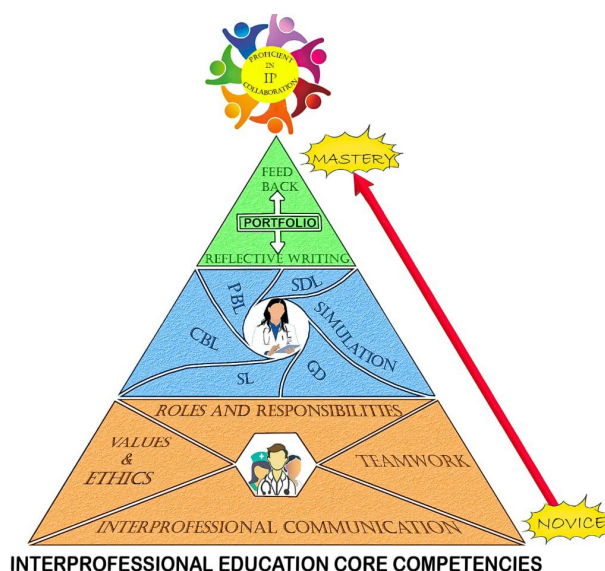


Figure 2. Interprofessional education progression pathways

professional learners, progressing from exposure to mastery, guide learners on a journey from novice to expert, preparing them to apply their skills effectively in real-world settings (Table 1).

1. Create core team members from various professional educators.
2. Sensitization of IPE among facilitators & undergraduate students (Exposure).
3. Develop a lesson plan for IPE as an integral part of their curriculum (Figure 3).
4. Monitor the student's activity in the portfolio with feedback. (Immersion).
5. Assess the learning process and look forward to the long-term outcome of patient safety (Mastery).<sup>7-10</sup>

### Factors influencing the implementation of IPE

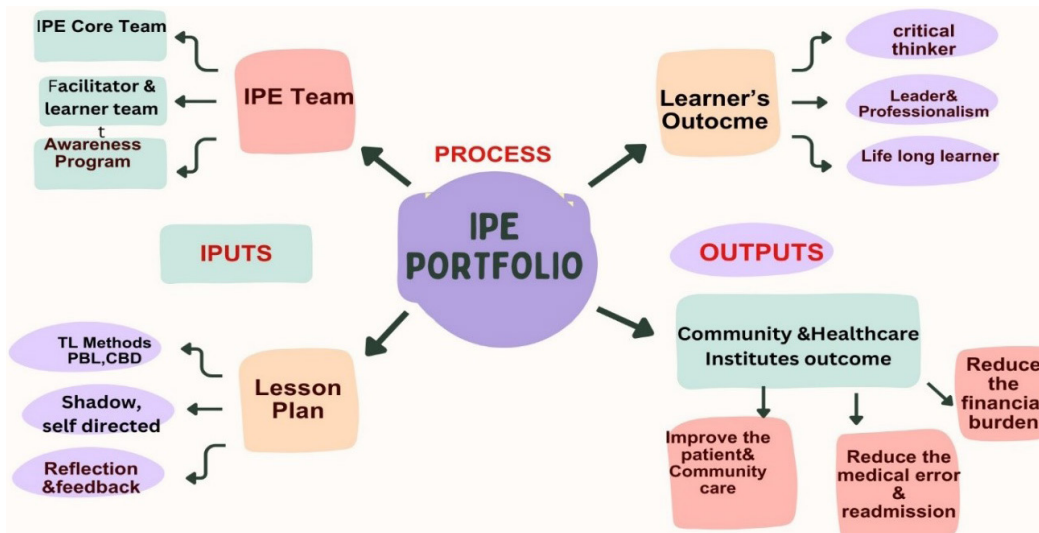
1. Health professionals need to know "how to explore, benefit from, and collaborate with other professionals". It is a fresh and demanding task, whether through formal or informal educational approaches.
2. Faculty development in IPE plays a key role in diminishing isolation, cultivating a collaborative facilitation style, as well as providing opportunities for faculty to share knowledge, experiences, and ideas.
3. With organizational support and a dedicated group of facilitators short-term outcomes such as fostering positive attitudes, clarifying roles, and enhancing communication skills among learners can be achieved. In the long run, these efforts can contribute to the creation of an organizational culture where 100% patient safety is ensured.

### Learning interprofessional education is a student-centered activity

IPE learning activity is learner-centered and works on a

**Table 1.** Learning phase of the IPE curriculum from exposure to mastery<sup>7-10</sup>

Phase	Definition
Exposure phase	The first phase of IPE is to prepare the organization and intended learners to come together with students who represent other health professions. This phase occurs through orientation programs, small group discussions, and social activities.
Immersion Phase	The middle phase warrants collaborative interactions that help learners focus on learning with, from, and about each other's profession. This phase also helps the student understand interprofessional values and ethics along with role clarification which are deemed vital ingredients for effective teamwork and collaboration in healthcare. This happens through case discussions, team meetings, bedside rounds, and simulation-based teaching.
Mastery Phase	The phase of integration of critical thinking and problem-solving in complex real-world situations.



**Figure 3.** CIPP model of IPE portfolio

student engagement approach. Examining the program through the lens of the Contexts, Inputs, Processes, Products/outputs (CIPP) model across all event stages can facilitate the identification of and solution to barriers. Integration of this CIPP model into our IPE portfolio aims to improve evaluation and problem-solving ability. The primary input focus of the portfolio is the formation of IPE teams, and lesson plan development, as illustrated in Figure 3. The process of portfolio documentation culminates in optimizing outcomes for learners and the healthcare community.<sup>11</sup>

Each stage prompts the learner to examine their experiences through questions designed to incite deep and critical reflection.<sup>10</sup> Achieving interprofessional competencies not only assures knowledge of IPE but also gives feedback with measurable evidence of learning. Thus, a portfolio represents measurable evidence of learning (assignments, case narration, observational checklist rating, documentation) and work experience. The work plan is based on experiential learning. Portfolio is a reliable and valid tool for formative and summative assessment. IPE portfolio is a continuous process wherein the faculty supervisor gives feedback to the student. This practice is highly recommended to reinforce the learning ability of the student.<sup>12,13</sup>

**Evaluation of the IPE curriculum**

Portfolios are powerful tools that can enhance this

reflective practice. Reflection on one's achievements, strengths, and weaknesses is a key component of adult learning. This process allows learners to better understand their learning styles, supporting self-directed learning by fostering reflection, self-assessment, goal-setting, continuous improvement of skills knowledge, and professional attitude. They provide a structured and personalized way for adult learners to take ownership of their learning process. As learners add artifacts, reflections, and examples of their work to their portfolios, instructors can track their development and understanding of the subject matter at the level of outcome evaluation by the Kirkpatrick model. There are four levels of evaluation for educational programs: reaction, learning, behavior, and result.<sup>14</sup> No single comprehensive tool fully meets the diverse needs of assessing IPE competencies holistically. A Review of the National Centre for Interprofessional Practice and Education website highlights the availability of quantitative assessment tools for evaluating IPE competencies. Most of these tools focus on assessing outcomes at Kirkpatrick's Level 3, emphasizing behavioral changes resulting from the educational intervention.<sup>15</sup>

Portfolio is less frequently used in pre-registration education across the health sciences. It is, however, useful with pre-registration students when they receive reflective feedback on their learning experience at Kirkpatrick level three. It shows the behavioral change in

undergraduate students, grooming them to handle future teamwork, lifelong learning, and improvement of their communication skills<sup>16</sup> (Figure 4).

## Conclusion

IPE presents opportunities necessary for learners from different health and social care professions to learn about the knowledge, skills, and expertise of each person on the team for the team to function well. IPE emphasizes the patient-centered approach, concentrating on outcomes driven by real-world examples and student-centered learning processes. Self-assessment promotes independent learning and encourages learners to take responsibility for their educational journey, fostering a sense of ownership. This proactive learning process is accomplished through portfolio documentation which serves as a valuable tool.

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## Authors' Contribution

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## Competing Interests

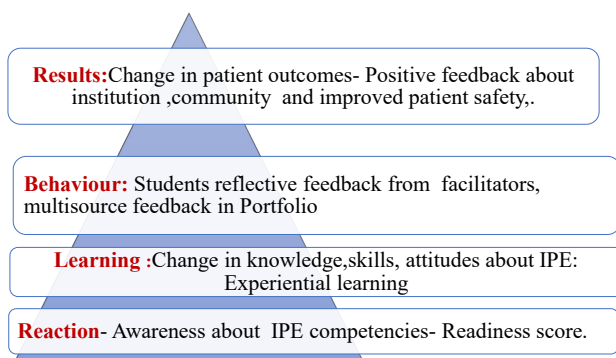
The authors declare no competing interest.

## Ethical Approval

Ethical approval was not obtained and does not apply to this study.

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**Figure 4.** Assessing the IPE curriculum implementation program using Kirpartick's levels

publication of this article.

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