Building Connections for Interprofessional Education and Interprofessional Collaborative Practice in Higher Education:

Foundational IPE Principles

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Interprofessional education and interprofessional collaborative practice (IPE/IPP) have become essential curricular components in higher education for speech-language pathology personnel preparation programs. The implementation of interprofessional education (IPE) has advanced the educational development of students in health care and education programs beyond that of traditional curricula (Birk, 2017). Changes in both health care and education systems have placed greater emphasis on interprofessional collaboration—resulting in an identified need to integrate IPE/IPP knowledge, skills, applications, and opportunities within curricula to meet workplace expectations. Coordination among academic institutions, health care systems, and community entities are required as best practice to implement longitudinal sequences of learning activities (Health Professions Accreditors Collaborative [HPAC] & National Center for Interprofessional Practice and Education [NCIPE], 2019). Successful implementation of IPE/IPP learning plans is a complex process requiring supportive environments and opportunities. Variance exists among higher education programs, as determined by geographic location, access to resources, and degree of leadership for plan implementation. In addition, accreditation standards are typically specific to an individual profession. Coordination of IPE/IPP learning plans among accredited programs is necessary.

> Changes in both health care and education systems have placed greater emphasis on interprofessional collaboration

Terminology

The World Health Organization's (WHO) definitions of *interprofessional education and interprofessional collaborative practice (IPE/IPP)*—as well as the Interprofessional Education Collaborative's (IPEC) definitions of *interprofessional teamwork* and *interprofessional team- based care*—represent consensus terminology that supports elements that are "about, from, and with" aspects of IPE (IPEC Expert Panel, 2016; WHO, 2010a). See Table 1 for these definitions. The American Speech-Language-Hearing Association (ASHA) has adopted the WHO definitions of *interprofessional education* and *interprofessional collaborative practice* with an extension to (a) emphasizing improving outcomes for individuals and their families and (b) delivering the highest quality of service across settings (ASHA, n.d.-a).

Collaborative practice happens when multiple health workers from different professional backgrounds work together to deliver the highest quality of care (Uhlig et al., 2018; WHO, 2010b). *Collaborative care* occurs when health care providers actively engage with patients and families as part of a team (IPEC Expert Panel, 2016).

The adoption of consensus terminology can facilitate shared understanding of IPE among academic institutions by providing uniform expectations for development, implementation, and evaluation of quality IPE (HPAC & NCIPE, 2019). Several organizations have attempted to identify consensus terminology among health care and education professions. One example is the lexicon document of the National Academies of Practice (NAP); this document includes 51 terms describing processes, populations, and work of interprofessional collaboration in advocacy, education, practice, or research (NAP, 2020).

TABLE 1. WHO and IPEC 2016 Terminology

Interprofessional education	"When students from two or more professions learn about, from and with each other to enable effective collaboration and improve health outcomes."
Interprofessional collaborative practice	"When multiple health workers from different professional backgrounds work together with patients, families, caregivers, and communities to deliver the highest quality of care."
Interprofessional teamwork	"The levels of cooperation, coordination, and collaboration characterizing the relationships between professions in delivering patient-centered care."
Interprofessional team-based care	"Care delivered by intentionally created, usually relatively small work groups in health care who are recognized by others as well as by themselves as having a collective identity and shared responsibility for a patient or group of patients (e.g., rapid response team, palliative care team, primary care team, and operating room team)."

Source: HPAC & NCIPE (2019)

IPE/IPP in Higher Education

The value of IPE/IPP opportunities for higher education personnel preparation programs impacts multiple stakeholders. Health care and teacher education university programs are typically developed with focused profession(s) in mind. This means that collaboration beyond the discipline-specific curriculum content of knowledge and skills is usually in place of or incorporated into the established program.

Health Care Programs

A key tenet of the IPE approach is greater communication between and among professionals. Collaboration places all participants on a similar contributory level in terms of providing services in health care. This is different from the traditional hierarchical development of health care professions, which typically recognizes the person in charge as being a leader from within a health care profession.

Changes within health care systems in recent years have resulted in a systemic paradigm shift from traditional care to collaborative care. Traditional care models have focused on uni-professional teaching and learning within higher education personnel preparation programs. Uhlig and colleagues (2018) provide a unique comparison of the move to collaborative care that can serve to inform our IPE learning practices (see Table 2).

TABLE 2. Traditional Versus Collaborative Care

Traditional Care	Collaborative Care
Physicians direct the care.	Physicians participate in the care.
Disciplines report about care provided.	Professions confer about care to be provided.
Patient and family are informed.	Patient and family are actively engaged.
Care progress is updated.	Care progress is mutually assessed.
Orders are given through hierarchy.	Care plan is jointly developed in real time.
Health care providers come "knowing everything."	Health care providers come "prepared but incomplete."
Patients are talked "about."	Patients are talked "with."
Health care provider begins with a synopsis and physiologic update.	Health care provider begins with introductions, goals, questions, and concerns.
Focus is on disease, treatment, and problems.	Focus is on people, needs, goals, and suggestions.
Discussions are conducted in third person—"he, she, they."	Discussions are conducted in first or second person—"you, we, I."
Medical language, acronyms are used.	Ordinary (plain) language is used.
Bullet points are used in discussions.	Discussions are conversational.
Health care providers engage in frequent side (or "silo") conversations.	Health care providers engage in inclusive conversation together with the patient and family.
"Who will do what" is unspoken and assumed.	"Who will do what" is clarified and agreed upon by all members of the care team, including patient and family.
Uni-professional teaching and learning is the model.	Collaborative teaching and learning is the model.
Patients and families are seen as recipients of knowledge.	Patients and families are seen as co-teachers and co-learners.
Care and education are "delivered/provided."	Care and education are "co-created/generative."

Source: Uhlig et al. (2018)

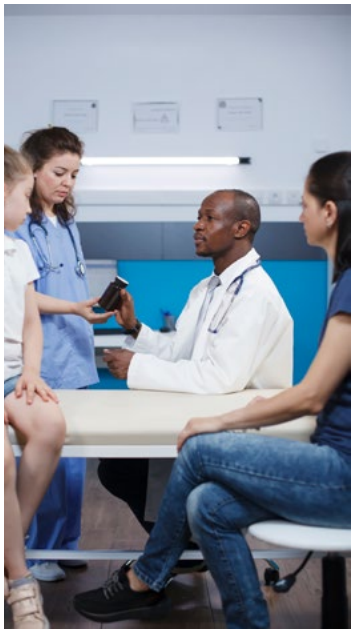
Programs are charged with preparing students for the workforce, and within health care, this now means collaboration-ready. Responsiveness to expectations of accountability and outcomes includes an understanding and preparedness to meet the goal of what is known as the Quintuple Aim of Healthcare, a term coined by the Institute for Healthcare Improvement (IHI). The Quintuple Aim seeks to (1) improve the patient experience, (2) lower health care costs, (3) improve patient outcomes, (4) improve the experience of the health care provider, and (5) integrate health equity into health care models. All aspects are important and align with collaborative care. Active student participation and collaboration are needed across professions in order to achieve the Quintuple Aim. Intentional IPE can have a beneficial impact on learners' attitudes, knowledge, skills, and collaborative competencies (Abu-Rish et al., 2012; Reeves et al., 2016; Nundy et al, 2022).

TABLE 3. The Quintuple Aim of Healthcare

Objectives of the Quintuple Aim of Healthcare	
Reduce Costs	Cost effectiveness, sustainability of costs, cost productivity
Population Health	Preventive care, positive socio-economic impact, reduced health care risk
Patient Experience	Patient satisfaction, patient outcomes, safety, quality
Provider Experience	Provider satisfaction, work/life balance
Health Equity	Reduction of disparity of health care

Source: Nundy S, Cooper LA, Mate KS. The quintuple aim for health care improvement: A new imperative to advance health equity. JAMA. 2022;327(6):521-522.

In addition, health care initiatives have moved to value-based service payment models, use of telehealth or telepractice, and a focus on population health, including consideration of the Social Determinants of Health (Centers for Disease Control and Prevention, n.d.). The *Social Determinants of Health* (SDoH) are the economic and social conditions that influence health status. Interprofessional collaboration promotes positive impacts on health and provides opportunities for IPE in health care settings. See Figure 1 for a more detailed description of the SDoH.

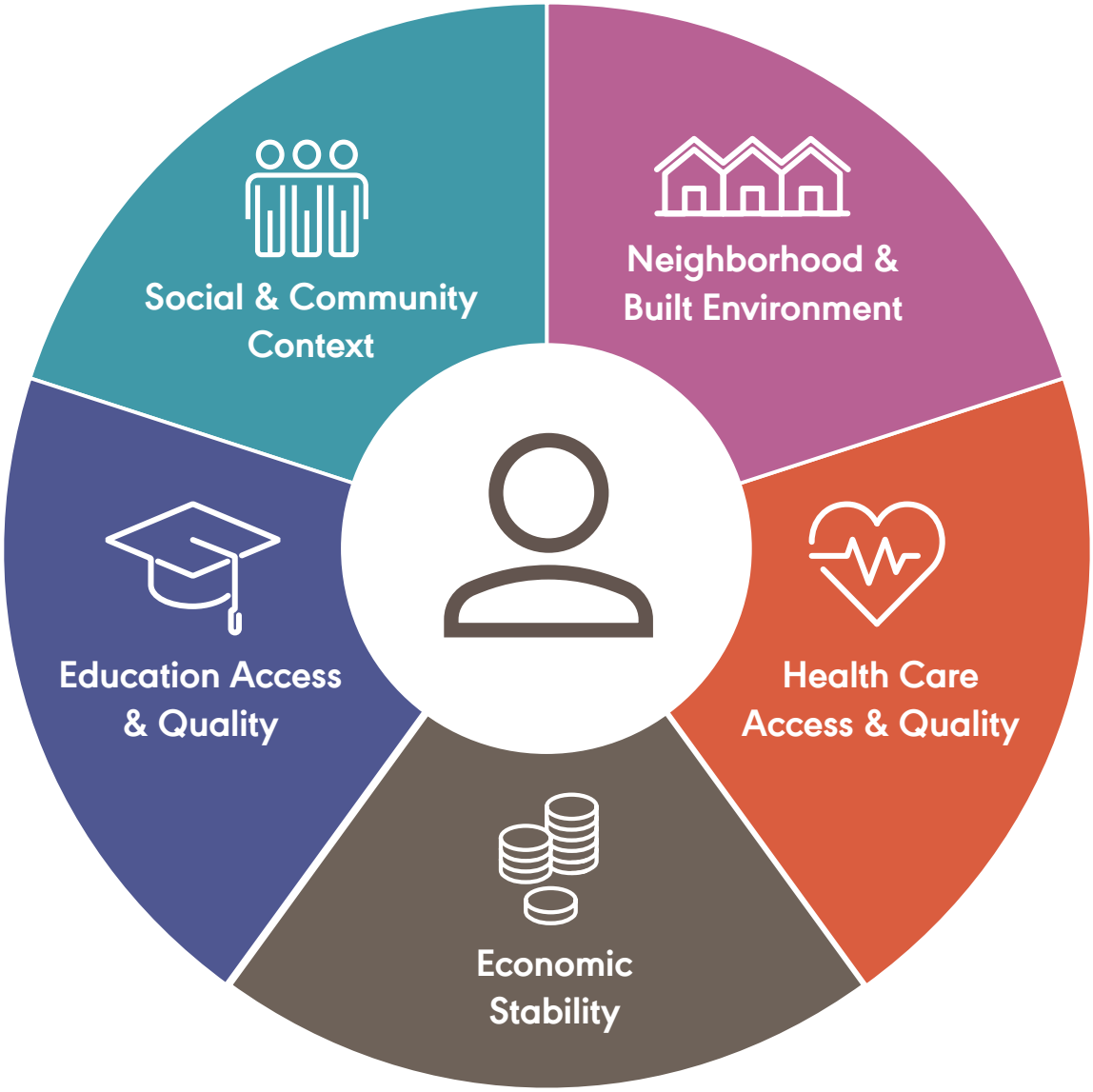


TRADITIONAL CARE
Health care providers engage in frequent side (or "silo") conversations.

VS.

COLLABORATIVE CARE
Health care providers engage in inclusive conversation together with the patient and family.

FIGURE 1. Social Determinants of Health (SDOH)



Source: American Speech-Language-Hearing Association. (n.d.-c). *What are SDOH?* https://www.asha.org/practice/what-are-sdoh/

School-Based Programs for K–12

Speech-language pathologists hold an essential role in education and are integral members of school teams (ASHA, 2010; Ludwig & Kerins, 2019). Collaboration is a key area of responsibility in providing unique contributions to the curriculum. Best practice supports (a) the collaboration between and among educators and health care professionals and (b) the need for adequate training in teamwork processes, collaborative roles, and effective communication.

Interprofessional collaboration has been an expectation in education settings for many years. The Individuals with Disabilities Education Act (IDEA) has been a universal guiding legislation for special education under which speech-language pathologists provide services (IDEA, 2004).

Federal law requires that special education be planned and implemented by an interdisciplinary team of professionals (IDEA, 2004). Embracing IPE as a shared vision for both health care and education settings is essential for establishing service delivery tenets that improve patient and student outcomes. Collaborative engagement among professionals from education and health care agencies is indicated for meeting mandates and achieving best practices in education policies.

IPE training and application provide opportunities to work within education teams needed to successfully implement two frequently used best practices: (1) multi-tiered system of support (MTSS) and (2) response to intervention (RtI). In addition, best practice indicates that a team approach is the ideal way to implement Common Core State Standards. Schools can meet accountability expectations by effectively preparing personnel in interprofessional collaboration.

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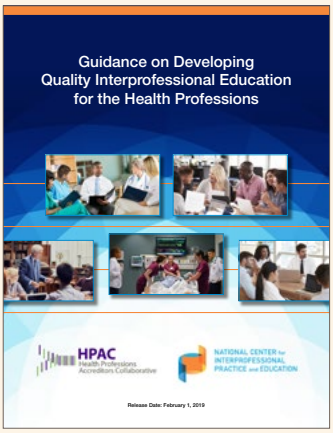
Accreditation

The various accrediting bodies for higher education personnel preparation programs are inconsistent in the provision of expectations and standards for implementing IPE in programs. These differences may be due to the approach that various accreditors use in responding to changes and innovation in health care education (Tekian et al., 2020). In 2019, the Health Professions Accreditors Collaborative (HPAC) and the National Center for Interprofessional Practice and Education (NCIPE) published a consensus document, *Guidance on Developing Quality Interprofessional Education for the Health Professions,* to support the development and implementation of high-quality IPE across health professions accreditors.

Responsiveness to accreditation expectations for the introduction and/or implementation of IPE varies among health profession education programs. The role of regulatory and accrediting bodies is considered integral to meeting IPE implementation. Incorporating IPE accreditation standards across health professions provides recognition of its importance to health care delivery (Fletcher & Marchildon, 2014; Mladenovic & Tilden, 2017). Collaboration among accreditors in development of standards and competencies may facilitate a common goal of preparing a workforce ready to implement IPE/IPP (Cox et al., 2017).

Higher education faculty members have identified some evidence showing that pressure from accrediting bodies served as a positive external influence (Najjar & Ascione, 2020). As interprofessional collaborative approaches continue to evolve in health care and education, accrediting bodies may recognize the need to ensure appropriate program delivery in order to produce workforce-ready candidates.



Guidance on Developing Quality Interprofessional Education for the Health Professions

The Role of CAA and ASHA in Interprofessional Collaboration

The Council on Academic Accreditation in Audiology and Speech-Language Pathology (CAA) has included IPE and interprofessional collaboration in its standards for accreditation of graduate education programs (CAA, 2017). Standard 3.0B in the area of "Curriculum" indicates the following professional practice competencies of collaborative practice:

1. Understand how to apply values and principles of interprofessional team dynamics.
2. Understand how to perform effectively in different interprofessional team roles to plan and deliver care that is (a) centered on the individual served and (b) safe, timely, efficient, effective, and equitable.

In the most current *Standards and Implementation Procedures for the Certificate of Clinical Competence in Speech-Language Pathology* (ASHA, 2020), the implementation language in Standard V-B reads as follows:

> Supervised clinical experiences should include interprofessional education and interprofessional collaborative practice, and should include experiences with related professionals that enhance the student's knowledge and skills in an interdisciplinary, team-based, comprehensive service delivery model. ("Implementation" section, para 4)

The ASHA Strategic Pathway to Excellence (ASHA, n.d.-b) includes *Strategic Objective #2: Advance Interprofessional Education and Interprofessional Collaborative Practice (IPE/IPP).* The outcome of this objective is that "academic programs employ IPE approaches to personnel preparation, and both students and ASHA members engage in interprofessional collaborative practice" (para 2). Data show that 95% of programs responding to the *CSD Education Survey* in 2020 reported implementing IPE approaches (ASHA, 2020; CAPCSD & ASHA, 2020).

The CAA has identified the following *IPE-related* professional practice competencies for this Strategic Objective:

- **Accountability:** Understand how to work on interprofessional teams to maintain a climate of mutual respect and shared values.

Competencies of collaborative practice:

1. Understand how to apply values and principles of interprofessional team dynamics.
2. Understand how to perform effectively in different interprofessional team roles to plan and deliver care that is (a) centered on the individual served and (b) safe, timely, efficient, effective, and equitable.

- **Effective Communication Skills:** Communicate—with patients, families, communities, interprofessional team colleagues, and other professionals caring for individuals—in a responsive and responsible manner that supports a team approach to maximize care outcomes.

- **Professional Duty:** Understand the roles and importance of interdisciplinary/interprofessional assessment and intervention and be able to interact and coordinate care effectively with other disciplines and community resources.

- **Collaborative Practice:** Understand how to (a) apply values and principles of interprofessional team dynamics and (b) perform effectively in different interprofessional team roles to plan and deliver care—centered on the individual served—that is safe, timely, efficient, effective, and equitable. (CAA, 2017, pp. 9–11)

Collaborative Competencies as Defined by IPEC (2023)

Interprofessional education (IPE) is an interprofessional collaboration of health disciplines that provides opportunities for patients, clients, and students to receive high-quality care that is developed by multiple health professionals. A key part of the IPE approach is communication among health care professionals to provide patients and their families with more choice and more choice regarding care options in a team-oriented manner. This collaborative model differs from traditional care hierarchies, in which a leader from a health care profession is typically "in charge." The purpose of the competencies defined for IPE is to effectively, equitably, and efficiently implement interprofessional, patient-centered care. The Interprofessional Education Collaborative (IPEC) updated the competencies in 2023 as follows:

Values and Ethics

Work with **team** members to maintain a climate of shared values, ethical conduct, and mutual respect.

Roles and Responsibilities

Use the knowledge of one's own role and **team** members' expertise to address individual and population health outcomes.

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Communication
Communicate in a responsive, responsible, respectful, and compassionate manner with **team** members.

Teams and Teamwork
Apply values and principles of the science of teamwork to adapt one's own role in a variety of **team** settings. (Interprofessional Education Collaborative, 2023, p. 21)

Collaborative Practice With Role Release

Collaborative practice requires multiple professionals to coalesce their expertise to solve complex case issues and provide coordinated care. *Role release* is a type of behavior that professionals may choose to include in their collaborative practice. It includes knowledge of *role expansion,* in which team members teach each other various skills, and *role exchange,* in which team members support learned methods and strategies in the presence of the trained professional. Role release requires that team members train—and be trained in—new techniques and skills that allow application under the supervision of health professionals from other disciplines, as a way to ensure accountability and ethical application of skills. Role release requires trust and confidence in sharing client-centered responsibilities by two or more disciplines. Role release does not occur in all collaboration. Co-treatment may contain elements of role release, wherein therapists from several disciplines provide collaborative treatment simultaneously. Therapists treat from their own discipline as well as provide support and integration of techniques from another discipline in working toward common patient/student goals (University of North Carolina, 2014).

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IPE Implementation

The implementation of IPE within the curricula of health care and education personnel preparation programs comes with both barriers and opportunities. Commitments from university administration, colleges, departments, and faculty are needed. Consideration of different professional cultures can be examined to identify elements of commonality and elements of challenge. An IPE curriculum aligned with WHO's (2010a; 2010b) definition of IPE will include coursework, simulations, clinical learning environments, and community outreach. As students from two or more professions learn "about, from, and with each other," the curriculum will reflect

the variety of learning opportunities.

Students learning "about" each other will help them increase their knowledge about the scope of practice of professions, disciplines, and health care workers. Knowledge may include roles and responsibilities, scopes of practice, licensure, and ethical standards of multiple professions (HPAC & NCIPE, 2019).

Students learning "from" each other will help them develop collaborative behaviors that they will share with colleagues from other professions. IPE includes opportunities for students to learn from fellow students enrolled in other programs at the same campus or at collaborating institutions—as well as from faculty and practitioners—in coursework, health care settings, and the community (HPAC & NCIPE, 2019).

Students learning "with" other students, practitioners, faculty, and professionals from other health care and education disciplines need opportunities to do so in multiple locations and within flexible and diverse calendars. These IPE opportunities include guided interactions for development of collaborative and interpersonal communication skills (HPAC & NCIPE, 2019).

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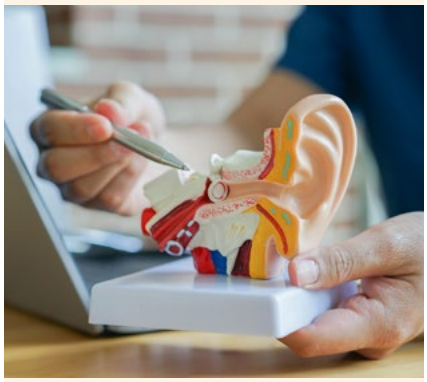

Components

Elements of best practice that support IPE curriculum include stakeholder planning, competency-based outcomes, intentional learning continuum, learning opportunities, and methods of evaluation.

Stakeholder planning requires transparent and effective communication among university leadership, colleges, faculty, and support services. A common vision for implementation is shared among stakeholders. Competency-based outcomes are program specific and may be grounded in identified competencies such as the Core Collaborative Competencies (IPEC, 2023) and are measurable for purposes of strategic planning and for accreditation.

Outcomes may align with discipline-specific scope and sequence of curricular content needs (HPAC & NCIPE, 2019). An *intentional learning continuum* provides a pathway for knowledge and skill development from beginner to competent and serves as an aid for discipline-specific planning into coursework scope and sequence. Learning opportunities are deliberately developed for mastery of outcome competencies. For all disciplines, this would mean mastery

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Professionals can improve IPE effectiveness by using an intentional learning continuum. One such continuum that the University of Toronto uses provides a framework for competency development. The three levels within this framework are (1) exposure level, (2) immersion level, and (3) competence level. The *exposure level* consists of introductory learning activities in which participants interact and learn from professionals and peers from disciplines beyond their own. The learning outcome is a deeper understanding of one's own profession and an appreciation of other professions. The *immersion level* consists of activities in which participants learn about, with, and from other professional learners in an active-learning situation. The learning outcome is the development of critical thinking skills that incorporate multiple perspectives. The *competence level* consists of practice-ready learning activities for integration of IPE and collaborative knowledge and skills. The learning outcome is the demonstration of competence as practice-ready health care providers (University of Toronto Center for Interprofessional Education, 2012).

The University of Toronto framework for competency development includes three levels:

1. exposure level
2. immersion level
3. competence level

Curricular Evaluation

Certain aspects of IPE merit evaluation within the curricular process. Elements of curriculum and instruction, faculty development, student outcomes, program evaluation, and research methods utilized can yield data about the effectiveness of IPE efforts. Student knowledge can be evaluated for issues such as the scope of practice of other professions, job duties, patient-centered care, quality measures, teamwork, patient safety, the Quadruple Aim, health care systems, education systems, and documentation/records. Student skills can be observed and evaluated for communication, leadership at team meetings, conflict negotiation, collaborative leadership, professionalism, team participation, and decision making. Students' affective states can be self-reported for issues related to attitudes, beliefs, self-confidence, and motivation (Schmitz & Cullen, 2015).

Challenges and Disrupters

Disrupters to successful IPE implementation may take many forms. Challenges at the university level include organizational and professional culture diversity, stakeholder perceptions of "additional work," organizational structures, scheduling and space logistics,

facilitator skills, equal representations of professions, power imbalances, and formal and informal "turf wars." Challenges at the level of faculty and participants include the fear of speaking up, the inability to identify the decision maker, slow communication, ego, lack of trust, confusion about priorities, lack of appropriate faculty incentive system, and the undervaluing of IPE compared with traditional teaching among the health professions (Brandt et al.,2018; Brewer et al., 2016; Kashner et al., 2017; Mladenovic & Tilden, 2017).

Grand Valley State University's Implementation Experiences

Established in 1960, Grand Valley State University (GVSU) is a public liberal arts university in Allendale, Michigan, with six campuses serving more than 23,000 students. Today, it is one of the 100 largest universities in the nation, offering high-quality programs and state-of-the-art facilities. GVSU's focus on student learning helps it fulfill its mission of "educating students to shape their lives, their professions, and their societies."

GVSU is home to the Midwest Interprofessional Practice, Education, and Research Center (MIPERC), a regional organization with a mission to identify ways that members can develop collaborative, innovative, and interprofessional initiatives across disciplines, learning institutions, and health care systems (MIPERC, n.d.). This multi-institutional organization is composed of 30 organizational members and numerous individual members across seven states. https://www.gvsu.edu/miperc/

IPE learning experiences are varied and encompass health care settings, education settings, clinical settings, and community settings. Educational experiences are intended to engage students in learning experiences that are robust, facilitate new learning, and meet competency- based outcomes. The purpose of IPE learning experiences is to prepare students to be collaborative practice-ready with demonstrated competence and confidence in working collaboratively within an interprofessional team (Patel, et al., 2017). Common methods for IPE include (1) didactic IPE instruction, (2) IPE clinical experiences, (3) high-fidelity simulations, (4) team case-based teaching and learning, and (5) community-based service teaching and learning (National Academies of Sciences, Engineering, and Medicine, 2019). These instructional

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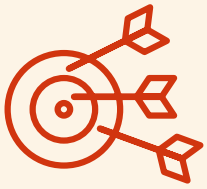

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methods represent best practice for IPE with a common objective of collaboration and interaction among learners (Congdon, 2016; Reeves et al., 2015). IPE as a prerequisite to building collaboration skills is supported by research evidence of statistically significant improvements in student attitudes toward other disciplines and in the value students place on a team-based approach for improved patient care (Spaulding et al., 2019). Research examining IPE has shown that IPE experiences improve learner proficiencies, however measurement of the association of IPE with patient outcomes remains a need (Edwards et al. 2019).

GVSU has established multiple IPE best-practice experiences designed to meet the learning needs of students in health care, education, and health administration personnel preparation programs. IPE learning experiences can include 10–20 university programs with collaboration among multiple colleges, universities, and clinical settings. Speech-language pathology students have opportunities to learn about, experience, and demonstrate skills of interprofessional collaborative competencies. Information about IPE-IPP initiatives for the Department of Communication Sciences and Disorders can be found at www.gvsu.edu/csd/ipe-ipp/.

IPE learning experiences can include 10–20 university programs with collaboration among multiple colleges, universities, and clinical settings.

Didactic IPE Instruction

Didactic instruction is a familiar experience within higher education and includes elements of pre-class readings or assignments. Dedicated IPE coursework includes multiple-discipline stakeholders and may be constructed as an interdepartmental course in which faculty rotate and demonstrate discipline-specific content and core competency modeling. Didactic IPE typically includes orientation and theoretical foundations for interprofessional work. Content includes team-based, problem-based, or case-based learning opportunities. Development of an IPE course offers some advantages for implementation of IPE. In a 500-level IPE course developed at GVSU, faculty reported that the development of a separate course avoids the difficulty of logistically integrating IPE into existing coursework. Uni-discipline coursework is typically already content rich and rarely has room for additional content. An IPE course contains outcomes that are universal for all disciplines and that include tenets of teamwork, knowledge of the health care system, problem-solving skills, change theory, and communication skills (Korner, et al. 2016). Pedagogy is student centered and may include student learning communities, problem-solving groups, team coaching, and joint teaching. Student feedback revealed challenges in course delivery, as expectations of semester-long

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course participation often did not include immediate experiential opportunities. The focus on knowledge may be less effective than a combination of knowledge and application simultaneously. For this reason, didactic IPE instruction is recommended to occur within intentional interprofessional student experiences that measure multiple skill sets, increased knowledge, and decision-making abilities.

IPE Clinical Experiences

Placements in clinical practicum settings provide opportunities to experience real-world work settings, including pacing of work, fringe experiences such as coding and billing, and a venue in which to practice skill development. In a practice learning environment, a health care student would usually be in clinical or practicum experiences. In this situation, the health care student would interact with a health care team responsible for patient care. While representing and accounting for plans and actions within one's own discipline or profession, an IPE team engaging in practice learning provides invaluable insight into how other health care disciplines and professions would plan and act in a similar case situation (Brandt & Barton, 2020; HPAC & NCIPE, 2019).

At GVSU, IPE practice learning occurred for speech-language pathology and dietetics students in clinical placement at a skilled nursing facility. Authentic, hands-on learning within IPE placements included sharing roles for assessment and intervention for diagnoses such as dementia and dysphagia. Specific clinical work included cross-professional investigation about a diagnosis such as dysphagia, co-development and administration of an evidence-based screening tool, and evaluation of utility through collaboration with facility personnel. Providing students with interprofessional opportunities to approach and work through challenges in clinical settings can increase their knowledge and skills while allowing them to practice actual collaborative care. These experiential learning opportunities can occur throughout the program to support integration of interprofessional collaboration within coursework and within culminating clinical requirements. Clinical educators, or *preceptors,* are encouraged to participate in professional development to learn methods, strategies, and pedagogies that enhance IPE engagement in clinical experiences (Lie et al., 2016).

Clinical observation learning methods consist of observing and performing another individual's behavior. Clinical observation

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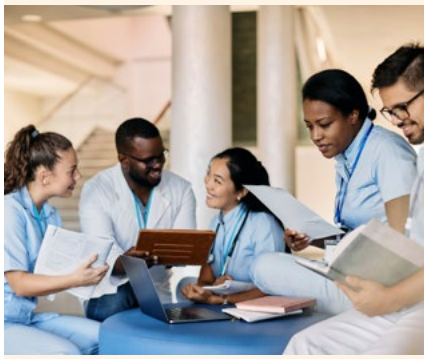

Providing students with interprofessional opportunities to approach and work through challenges in clinical settings can increase their knowledge and skills while allowing them to practice actual collaborative care.

requires attention, reflection, and rebuilding of content.

Individuals from multiple disciplines participate in the same observation experience to improve collaborative skills for topics such as health literacy, communication with bilingual clients, or community clinics (Kent et al., 2016).

High-Fidelity Simulations

Simulation is an intentional learning opportunity in which the instructors use mannequins, standard patients or model patients (i.e., community members who are trained to act like patients/clients), and case studies within dedicated environments. Simulations have been identified as an effective substitute for real patient clinical encounters by allowing learners to practice working on interprofessional teams, problem-solving various cases, and making decisions about care plans while in a safe environment (Marion-Martins & Pinho, 2020' Nagelkerk et al., 2018). These guided learning experiences should include (1) learner outcomes,

(2) a curriculum, (3) a structured prebrief and debrief plan, (4) an evaluation process, (5) a logistical plan, and (6) faculty preparation. Use of technology has improved access to learning supports such as ear microphones for faculty/student coaching, cameras for review and reflection, and real-time observation with commentary. Intentional planning of goal-oriented experiences using clinical scenarios has become a valuable tool for teaching IPE. For example, students participate in *huddles*, a 10-15 minute stand-up meeting, as a way to practice information sharing and cross-checking skills in clinical settings (McQuaid-Hanson & Pian- Smith, 2017). Simulation can also be a role-play experience in which the instructor uses trained model patients; this provides opportunities for human interaction—essential for practicing IPE competencies. Simulation examples include a mental health call center, a weight management clinic, an oral health simulation, an emergency event, and an interaction involving food insecurity. Speech-language pathologists at GVSU have experienced the following simulation opportunities:

- **Simulation Events.** Speech-language pathology students can participate in multiple simulation events offered through the MIPERC. These events have included simulation design competitions, escape rooms, and emergency disaster response

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simulations. IPE initiatives and activities are planned by individuals from two or more professions to implement learning activities. Students participate in poster presentations, hearing screenings, the immersive experience of an infectious disease escape room, and a simulated disaster event.

- **Simulation Within Coursework.** Speech-language pathology coursework offers multiple opportunities to integrate IPE experiences that bridge content knowledge with clinical application. Some examples include the following:

  Early Intervention—Occupational therapy, recreational therapy, and speech- language pathology students develop, implement, and evaluate a Part C/IDEA evaluation plan using a video to demonstrate collaborative skills.

  Pediatric Language—Occupational therapy, social work, and speech-language pathology students apply the IEP process within a case study.

  Pediatric Language—Teacher education and speech-language pathology students demonstrate application of collaboration to simulation of parent/teacher conferences using trained standard patients.

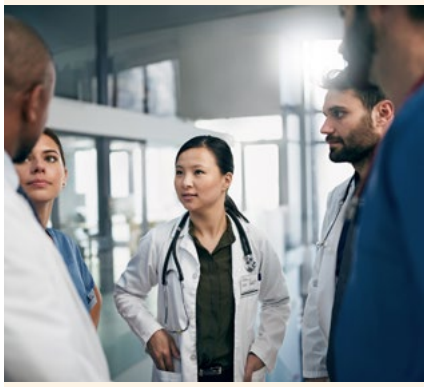
  Voice—Nursing and speech-language pathology students learn about videostroboscopy through collaborative learning and application of roles.

  Dysphagia—Combined instruction occurs for fiberoptic endoscopic evaluation of swallowing (FEES) in lab for nursing and speech-language pathology students.

  Dysphagia—Students work in teams to identify a problem of swallow and engage in team problem solving, including occupational therapy, physician assistant, nursing, and speech-language pathology students.

  Dysphagia—Occupational therapy and speech-language pathology students work in teams to identify adaptive equipment needs using a case study.

  Phonology—Speech-language pathology and teacher education students work collaboratively to identify strategies for improved intelligibility within classroom settings.



Events are planned for large groups of students to work within teams to respond to complex medical case studies.

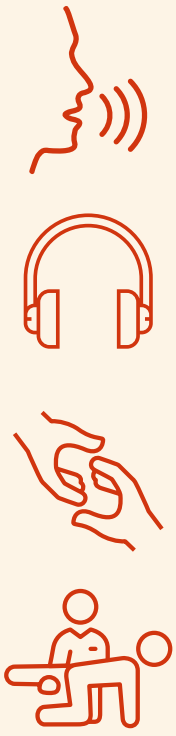
Team Case-Based Learning

Team case-based learning is an approach that has been consistently used within disciplines as opportunities for students to demonstrate their knowledge using real-world scenarios. Typically, case-based activities are supported by rubrics aligned with learning objectives in cognition and affect according to Bloom's taxonomy. Events are planned for large groups of students to work within teams to respond to complex medical case studies. Students gain the benefit of peer-to-peer interactions to practice IPE competencies and to learn about other professions. Faculty then follow up with students by providing prompts for deeper thinking about how all professions are needed for completion of case-based learning. Case-based learning occurs through collaborations among faculty merging coursework from a variety of disciplines as well as for large events planned by faculty teams (Fox et al., 2018; NCICLE, 2019). Team case-based learning at GVSU has included the following components:

- **Adult Case Study Simulation.** These events are planned and implemented by faculty from the professions of speech-language pathology, occupational therapy, physical therapy, physician assistant, nursing, radiation therapy, audiology, health administration, social work, health information management, dietetics, respiratory therapy, pharmacy, and public health. Learning outcomes align with the Interprofessional Core Competencies (IPEC, 2023) and knowledge and application of the impact of the SDoH. During these large-scale events, students participate in interprofessional teams of 8–10 individuals in person—and, more recently, virtually—to discuss and develop a care plan using a medically complex case study. Use of live standard patients has also been integrated to provide students the opportunity to ask questions of stakeholders such as the patient, nursing staff, family members, and so forth. Students are expected to demonstrate knowledge and application of team collaboration skills, interpersonal communication skills, and SDoH within the care plan. The simulation includes elements of didactic instruction, peer coaching about roles and scope of practice, and experiential learning within teams. Student learning outcomes of knowledge of Core Competencies and Health Disparities through SDoH are measured.
- **Pediatric Case Study Simulation.** These events are very similar to the adult simulations with the same faculty composition—with the addition of faculty and students from education and

Events are planned and implemented by faculty from the following professions:

- speech-language pathology
- occupational therapy
- physical therapy
- physician assistant
- nursing
- radiation therapy
- audiology
- health administration
- social work
- health information management
- dietetics
- respiratory therapy
- pharmacy
- public health



special education programs. Learning outcomes align with the Interprofessional Core Competencies (IPEC, 2023) and understanding of the special education process (IDEA, 2004). The case study includes both health care and education content (individual education program) and students work in teams of 8–10 in person or virtually to discuss and develop both a health care plan and an education program plan. Use of live model patients has also been integrated to provide students the opportunity to ask questions of stakeholders such as the "parents," nursing staff, therapy staff, school personnel, and so forth. Students are expected to demonstrate knowledge and application of team collaboration skills, interpersonal communication skills, and medical–educational collaboration within the care plan and education program plan. The simulation includes elements of didactic instruction, peer coaching about roles and scope of practice, and experiential learning within teams. Student learning outcomes of knowledge and application of Core Competencies and Teamwork are measured.

Community-Based Service Learning

The *professional learning community* is a method to facilitate collaborative learning among students within a particular environment or discipline. It can be used as a way to organize students into groups dedicated to studying a specific topic. For IPE learning communities, students devote their time to reading, reflecting on, and discussing integrated tenets of interprofessionalism. IPE literature provides examples of students engaging in robust education through learning communities. Examples include research, focused discussion, and self-facilitated recommendations for topics such as poverty, health care, and health literacy.

Interprofessional service learning is a form of experiential education in which two or more professions engage in activities that address human and community needs together with structured opportunities intentionally designed to promote active and reflective learning about, from, and with each other to enable collaboration and improve health outcomes (Jacoby, 2015; MIPERC, n.d.). Service learning projects may include community outreach, wellness fairs and expos, population screenings, and pro bono clinics. Service learning includes the added benefit of service to local communities.

- **Wellness Health Expo.** An event like this provides GVSU students the opportunity to experience and discover the

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identity, values, scope of practice, and roles of health profession providers. Students work on interprofessional teams to identify, research, and provide a student health-focused project based on dimensions of wellness. Students practice their use of skills for engaging in effective interprofessional communication, working on teams, and problem solving. GVSU students disseminate the health-focused project at the university-wide Wellness Health Expo. Their intended audience is the student population. Topics range from environmental wellness such as water quality to methods for memory improvement to building a network of support for social wellness. SDoH that impact health disparities become a consideration for all health care professionals (MIPERC, n.d.).

- **Children's Museum Health Care Exhibit.** Teams of health care and education profession students collaborate during a 2-month period to develop a learning experience for preschool and primary-grade students. The venue is a children's museum, which provides the opportunity to teach children about various health professions and about the concepts of wellness such as hand washing, casting, roles of health care personnel, listening, oral care, first aid, and so forth. The content developed by IPE students aligns with Michigan's Health Education Content Standards (Michigan Department of Education, 2006) for collaboration directly with K–12 school personnel. This service learning event provides opportunities for university students to practice skills of team dynamics, health literacy, communication, and community outreach (MIPERC, n.d.).

The MIPERC organization provides opportunity for students to earn a Student IPE Certificate by integrating a variety of experiences throughout their program completion.

Student IPE Certificate

The MIPERC organization provides opportunity for students to earn a Student IPE Certificate by integrating a variety of experiences throughout their program completion. These experiences include online modules of introduction to IPE, patient safety, team dynamics, and implementing behavioral change. In addition, students participate in simulations, service-learning opportunities, IPE conferences, IPE events, interprofessional interactions with multiple disciplines, a reflective essay and a culminating project. The certificate takes approximately one calendar year to complete and is self-paced. Completion indicates "joining the national sustainability movement as a change agent promoting better care, better health, decreasing costs through interprofessional team collaboration" (MIPERC).

IPE Conferences, Webinars, and Presentations

Multiple opportunities exist for participation in virtual or in-person IPE conferences, webinars, and presentations with a focus on topic delivery or skill application. Students from multiple disciplines may develop and present a grand rounds summary, a "lunch-and-learn" discussion, a treatment approach debate, or a research dissemination. Students can attend formal conferences that are sponsored by organizations with specific health care focus areas, such as mental health, public health, and traumatic brain injury. MIPERC provides an annual conference for community health care providers and students to address health care issues related to interprofessional collaborative care.

Conclusion

In recent years, health care and teacher education personnel preparation programs have placed a priority on interprofessional education (IPE) and interprofessional collaborative practice (IPE/IPP). Changes in pedagogical and andragogical approaches have been evidenced for students in these programs as well as for practicing clinicians. These changes have resulted in a pivot to the inclusion of both university faculty and community service providers in the development and implementation of interprofessional collaboration. The shift to a system of patient-centered, team-based care provides clinicians the opportunity to develop interprofessional skills that result in confidence and professional humility.

Future directions include a need for a clearer focus on examination and measurement of long- term impact for both patient-care and special education outcomes. These outcomes may include increasing the quality of patient improvement initiatives, improving patient safety requirements, reducing the overall cost of health care, addressing health disparities as indicated by the SDoH, and improving outcome standards for students with special education needs in the K–12 system. Our focus on identifying what elements work for positive change within IPC practices will provide the opportunity to expand and build evidence-based strategies.

Trends in preparing a future speech-language pathology workforce include

- the use of interprofessional collaboration for placement and use in clinical setting experiences,

Future directions include a need for a clearer focus on examination and measurement of long-term impact for both patient-care and special education outcomes.

- the use of telehealth to increase opportunities for service delivery from multiple health care providers simultaneously,
- measurement of those aspects of models and programs that positively impact outcomes for replication, and
- practitioner identification and modeling of interprofessional behaviors as a priority for employment.

Sustainable IPE and IPP must be viewed as a partnership with shared responsibility along the continuum of academic preparation and use by practicing clinicians in clinical settings.

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