



Research

Exploring Structures and Processes Supporting Interprofessional Education During Experiential Learning Placements for Student Pharmacists

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ABSTRACT

Objective: To explore stakeholder views on the structures and processes supporting planned and unplanned interprofessional education (IPE) during experiential learning (EL) placements for student pharmacists in Scotland.

Methods: Online semistructured group interviews were conducted with academic staff, practice educators, and EL facilitators (preceptors). Recordings were transcribed verbatim and analyzed thematically. Systems theory underpinned the study. Ethical approval was granted by the School of Pharmacy and Life Sciences Ethics Review Committee at Robert Gordon University.

Results: Three main themes were identified: current IPE delivery and context, factors affecting IPE delivery and student pharmacist learning, and rethinking current IPE provision. Stakeholder views provided valuable insights into presage factors relating to contextual elements (cultural, logistical, regulatory) and their influence on IPE delivery and interprofessional learning. EL facilitator and student pharmacist characteristics were also highlighted as influencing factors; process factors included examples of planned and unplanned IPE experiences on offer in community, hospital, primary care, and specialist areas of pharmacy practice; product factors highlighted the importance of IPE to support the development of collaborative competencies. Future developments need to focus on a continuum of IPE learning and a coordinated approach between higher education institutions and placement providers and interprofessional practice teams.

Conclusion: Curricular development and implementation of new IPE is not without its challenges. This study has provided a strong foundation that will inform future developments to ensure new initiatives are conducive to supporting effective interprofessional learning during placements.

1. Introduction

Global strategies identify interprofessional education (IPE) and collaborative practice as integral parts of transformative policies aimed at developing the health and social care workforce's capacity to strengthen integrated health systems.¹⁻³

Regulatory bodies overseeing health care professionals' education and training call for the inclusion of IPE in undergraduate curricula. In the pharmacy context, examples include the US Accreditation Council for Pharmacy Education standards and the Canadian Council for Accreditation of Pharmacy Programs standards stipulating inclusion of curriculum

content, preparing graduates for patient care provision as collaborative team members in various practice settings.^{4,5} Similarly, the UK regulator, the General Pharmaceutical Council (GPhC), specifies inclusion of IPE opportunities; commencing at an early stage in undergraduate Master of Pharmacy (MPharm) programs and progressively developing throughout the years of study.⁶ Several studies have examined the nature of IPE initiatives in pharmacy curricula, highlighting a lack of standardization of IPE.⁷⁻⁹ Jones and colleagues⁷ report that just over half (55%) of US colleges and schools of pharmacy included IPE during introductory pharmacy practice experiences; respondents cited the lack of access to sufficient health care facilities and personnel resources as barriers to implementation.

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The “2022 Global IPE Situational Analysis Results Final Report” outlines developments of IPE integration in health care professionals’ curricula over the past decade; in spite of significant growth, it highlights wide regional gaps with respect to established IPE programs, funding, and centralized institutional IPE organizational models.¹⁰ Illingworth and Chelvanayagam provide an overview of ways IPE has been integrated into professional undergraduate curricula, reporting students evaluate initiatives conveying a sense of relevance to professional practice more positively.¹¹ Factors such as adequate staff training and challenges of finding appropriate IPE opportunities in diverse practice settings need to be considered when providing and facilitating planned and unplanned IPE during practice-based placements.¹² In addition, stakeholder involvement in the coproduction of practice-based IPE initiatives may help overcome macro-, meso-, and micro-level barriers relating to funding, logistical factors, and experiential learning (EL) facilitator workload.¹³ Work completed by the “Task Force on Intentional Interprofessional Education within Experiential Education” convened by the American Association of Colleges of Pharmacy reports that published literature provided little guidance on the development and assessment of intentionally planned IPE in EL settings. Recommendations focused on the inclusion of planned opportunities throughout the curricular continuum and campus-based IPE activities to prepare students and enhance interprofessional learning during placements.¹⁴ Nisbet and colleagues¹⁵ report that learning may not only occur through formally structured IPE but also through informal IPE.

Pharmacy programs in Scotland are offered by the School of Pharmacy and Life Sciences at Robert Gordon University (RGU) and the Strathclyde Institute of Pharmacy and Biomedical Sciences at the University of Strathclyde. Student pharmacists study a 4-year master’s level university program, followed by a foundation year in practice and successful completion of the GPhC assessment before registering as a pharmacist. Opportunities to attend placements are included as part of the EL curriculum for all student pharmacists; these take place in community pharmacy, primary care, hospital, and specialist areas of practice during the first 4 years of study. Placements are organized in partnership with RGU, University of Strathclyde, NHS Education for Scotland (NES), and other pharmacy stakeholders. NES manages financial governance and quality management aspects on behalf of the universities through premises approval of training sites and EL facilitator training. The latter involves mandatory completion of the Preparation for Facilitating Experiential Learning (PFEL) training and participation in a supervisor development and quality assurance process every 3 years, involving the EL facilitator, making a self-declaration that they have undertaken learning activities and completed GPhC revalidation entries in relation to their supervisor role. Nonmandatory peer review sessions facilitated by practice educators are also available, aiming to support professional development through EL facilitator group discussions.

There is no escaping the complexity surrounding IPE curriculum development. Strategic planning, incorporating a coherent approach focusing on a continuum of learning, including experiential education, and appropriate assessment approaches is needed.¹⁶ Published literature advocates prioritization of IPE research to support successful implementation of new initiatives through evidence informed strategies.^{10,17} This study aimed to explore stakeholder views on structures and processes supporting planned and unplanned IPE during placements, with the secondary objective of identifying stakeholder training needs. It was included in the first phase of a research program, with the overarching aim of developing and implementing IPE in the EL curriculum of the 2 MPharm programs in Scotland. It was considered pertinent to start with a thorough analysis of the current situation to understand what happens during placements before any new initiatives were developed.

2. Methods

The study took a pragmatic worldview, using a qualitative research methodology to provide a more meaningful understanding of the subject area. Over the past 2 decades, there has been increased focus by

Table 1
Interview Schedules Used During Group Interviews.

Interview schedule used during group interviews with EL facilitators
1. Could you please start by introducing yourself by telling us briefly about your area of practice and your involvement with hosting student pharmacists on EL placements?
2. What do you know about campus-based IPE initiatives that are offered to student pharmacists at both schools of pharmacy in Scotland?
3. How important do you consider it is for student pharmacists to have opportunities for IPE while on EL placements? Prompts: Why? Would you say you prioritize IPE when planning activities for student pharmacists during EL placements?
4. What opportunities for IPE are there, planned or unplanned? Prompts: Opportunities to role-model collaborative practice? Opportunities for student pharmacists to interact with other health care students or professionals?
5. From your experience, how receptive are student pharmacists to IPE opportunities? Prompts: How do they respond when opportunities arise? Is there willingness/hesitancy to participate? What support/training if any do you offer to students? Do they actively seek out opportunities? How does current PFEL training facilitate IPE during EL placements?
6. What if anything would you change about the current PFEL training to support you in facilitating both planned and unplanned IPE during EL placements? Prompt: Why would you change this? Would you say a more direct IPE focus is needed?
7. What facilitators/barriers do you see to your changes being made? Prompts: Culture around hosting student pharmacists on EL placements? Culture around IPE? Time commitment?
8. Is there anything else you would like to add?
Interview schedule used during group interviews with academics and practice educators
1. Can you please tell us a little bit about your involvement with the preparation of student pharmacists for EL placements and/or training provided to EL facilitators hosting student pharmacists on EL placements?
2. How important do you consider it for student pharmacists to have opportunities for IPE while on EL placements? Why?
3. What are your views on how the current preparation provided to student pharmacists or training provided to EL facilitators supports IPE?
4. What changes, if any, do you think should be made to the current preparation for student pharmacists or training provided to EL facilitators to support planned and unplanned IPE?
5. How can we support students to take advantage of opportunistic IPE?
6. How can we encourage EL facilitators to prioritize IPE during EL placements?
7. What are your views on the need for EL facilitator IPE training to be more aligned to the different areas of practice?
8. What facilitators/barriers do you see to changes being made? Prompts: Culture around hosting student pharmacists on EL placements? Culture around IPE? Time commitment?
9. Is there anything you would like to add?

Abbreviations: IPE, interprofessional education; EL, experiential learning; PFEL, Preparation for Facilitating Experiential Learning.

educators and researchers on the application of theory in IPE initiatives.¹⁸ Given the complexity of the subject area and the exploratory nature of the study, systems theory, which follows the principle of thinking about things as a whole rather than in parts, was chosen to underpin the research.¹⁹ The Biggs 3P Model and the 3P Model of Learning to Collaborate consider presage, process, and product factors in the teaching and learning environment, taking the view that this environment is made up of a set of microsystems, each having an element of autonomy but also interacting with other microsystems in the system as a whole.^{20,21} The models guided the development of data collection tools: semistructured interview schedules. Development was further informed by a literature review and discussions between team members (CD, AA, SC, and BA); the final schedules were reviewed for face and content validity by other members, all with extensive pharmacy education and research experience (AB, SAJ, AP, and JP) (Table 1). Schedules were piloted before data collection; no modifications were needed.

Three stakeholder groups were identified by the research team as relevant to the study due to their involvement with IPE and/or EL organization and delivery; recruitment was via email distributed by NES or members of the research team (CD and AP). A whole population sampling strategy was used to recruit EL facilitators. Those having completed the PFEL training and who, at the time of the study, were employed at a NES-registered placement provider site during the 2021/

2022 academic year were contacted ($n = 1135$). Sites were geographically distributed in urban and rural areas throughout Scotland and included pharmacists employed in the 14 territorial health boards, some special health boards providing national services, and contracted community pharmacies. Purposive sampling was used to recruit academic staff and practice educators. Only staff involved in the organization/delivery of IPE and/or EL at both schools of pharmacy were contacted ($n = 7$); practice educators facilitating PFEL training were identified ($n = 6$). As reported by Johnson and colleagues,²² purposive sampling is intended to include the most appropriate participants in the most appropriate context, increasing the probability of the research aim being met. Detailed demographic data of participants, such as age and gender, were not collected to eliminate the potential identification of the participants recruited via purposive sampling.

Online group interviews were conducted by 1 member of the research team (CD) with previous training/experience in qualitative data collection. Transcripts were automatically generated, matched to recordings, edited verbatim, and anonymized by CD. This process was accuracy checked by BA to increase trustworthiness while also allowing familiarization with collected data. Codebook thematic content analysis, combining both a deductive and inductive approach, was used.²³ One group interview transcript was analyzed independently by CD and BA; emerging subthemes and themes were discussed. The remaining group interview transcripts were analyzed by CD, with regular discussions taking place with the research team. The NVivo software was used to increase transparency. Ethical approval was granted by the School of Pharmacy and Life Sciences Ethics Review Committee at RGU (approval number S292) in November 2021. Informed consent was taken from all participants before data collection.

3. Results

Five group interviews were conducted with 2 academics, 4 practice educators, and 6 EL facilitators between November 2021 and March 2022. The 6 recruited academics and practice educators also had practice experience in pharmacy settings: community ($n = 3$), hospital ($n = 2$), and primary care ($n = 1$). During 1 interview, a participant lost connection 20 min into the discussion and was unable to reconnect. Group composition for discussions was based on participant availability (Table 2). Discussions ranged from 42 to 80 min.

Three themes and 9 subthemes were identified. Details are provided as a narrative description with supporting quotations linked to subthemes and presage, process, and product domains in the 3P Biggs model (Tables 3–5).²⁰

3.1. Theme 1: Current IPE Delivery and Context

3.1.1. Subtheme: IPE Opportunities

Participants described examples of IPE opportunities; most involved interactions with qualified health and social care professionals, for example, during ward rounds and multidisciplinary team (MDT)

Table 2
Group Interview Composition.

Participant characteristics	
Group interview 1	Academic; practice educator
Group interview 2	Academic; practice educator
Group interview 3	Practice educators ($n = 2$)
Group interview 4 ^a	EL facilitators (community, hospital)
Group interview 5 ^a	EL facilitators (hospital [$n = 1$], out-of-hours service [$n = 1$], primary care [$n = 2$])

Abbreviation: EL, experiential learning.

^aDiscussions with EL facilitators were originally planned with 3 participants; however, 1 participant who could not attend on the day due to clinical commitments attended the discussion scheduled at a later date.

Table 3

Theme 1 Supporting Quotations Linked to Subthemes and the Biggs 3P Model Domains.²⁰

Theme 1: Current IPE delivery and context	
Subtheme	3P (presage, process, product) domain
(i) IPE opportunities	Process
“We are really fortunate that we have access to mental health teams, out of hours teams, pharmacist teams, dental teams; we pair up students with all these services and they shadow them for part of their experience.” (EL facilitator; out-of-hours service; GI 5)	
“...The students I had last week actually grabbed, I was away making a phone call and they asked the dietician on ICU, you know what’s your role, which I thought that’s good and [the dietician] had explained what her role on ICU was, so that was a little bit of unplanned IPE.” (EL facilitator; hospital; GI 5)	
“... within hospital there’s probably more of a kind of mix in terms of the students that are actually coming through so there may already be kind of more of a culture there where it’s an expected [pause] contribution from all of the health care professionals involved.” (Practice educator; GI 3)	
(ii) Lack of specific IPE focus	Presage
“The learning outcomes that the universities are providing to the students don’t mention interprofessional education...” (Practice educator; GI 1)	
“There’s a little bit of potential for unplanned IPE but then, on the other hand, does it take away from the learning objectives that we’ve been given...” (EL facilitator; hospital; GI 5)	
“It’s not a priority for them [student pharmacists] ... because there is so much else, they have to think about.” (Academic; GI 1)	
“... if I was leading or facilitating one of the [PFEL] groups, it’s probably not something that I would be pro-actively pushing as a priority during the session. So, there’s maybe something, there is maybe a gap there that needs addressed...” (Practice educator; GI 1)	
(iii) Perceptions of IPE/Collaborative	Presage; Product
Practice	
“It’s hugely important ... it’s pretty fundamental and the skill sets that they have to have – communication, prioritization, knowledge of the different roles that members of the MDT play. They would be unprepared for the realities of practice if they didn’t have that built into their undergrad.” (Practice educator; GI 1)	
“Sometimes patients that maybe are struggling to understand elements of their treatment and their care plan at particular times and how as a team we would approach that and that we all play a part.” (EL facilitator; hospital; GI 4)	
“Community pharmacy is quite an insular relationship, you’re working you know on your own, you’re not part of the health care team, well, you are ... but you’re not necessarily seen as being a member of the health care team by other professions; you’re independent, you’re on your own so sometimes it can be isolating.” (EL facilitator; community; GI 4)	
“... coming from community, I think there is overall a sort of cultural barrier in terms of our professional communication, and I know myself when you’re trying to solve a problem, you’re basically trying to get an answer and maybe we’re looking too narrow.” (Practice educator; GI 3)	

Abbreviations: EL, experiential learning; ICU, intensive care unit; IPE, inter-professional education; GI, group interview.

meetings. These were perceived as informally planned opportunities organized as part of an individual EL facilitators remit or opportunistic IPE that student pharmacists took advantage of when the opportunity arose. Participants reported few examples of formally planned IPE organized with input from an interprofessional team and involving varied student groups; an example given involved a hospital-based inter-professional learning day in the wards. However, these were only offered by some territorial health boards. Views into which areas of practice provided more IPE opportunities varied among participants. Some perceived placements in community pharmacies as presenting less, in contrast to placements in hospital, specialist, and primary care settings, which were viewed as more conducive to supporting IPE due to the inherent nature of day-to-day work, calling for the presence of MDT members in addition to a mix of students from other professional groups. However, other participants did not share this view; in addition to opportunistic IPE, community pharmacy placements where pharmacists had established relationships with, for example, health center staff such as general practitioners (GPs) or nurse practitioners, were considered to offer opportunities for planned IPE.

Table 4
Theme 2 Supporting Quotations Linked to Subthemes and the Biggs 3P Model Domains.²⁰

Theme 2: Factors affecting IPE delivery and student pharmacist learning	
Subtheme	3P (presage, process, product) domain
(i) EL facilitator factors	Presage; process
<p>"I probably feel quite passionate about it [IPE]. That I think I've been able to become an advanced pharmacist and become specialized ... because I benefited from an interprofessional environment." (EL facilitator; hospital; GI 4)</p> <p>"... We need to have a new approach to risk management and part of that is that we need to work with people who are more used to taking risk ..." (Academic; GI 2)</p> <p>"... The feedback that we get back from facilitators, you know that this is just an additional workload and responsibility for them, they also have their daily and their weekly tasks that they've got to complete." (Practice educator; GI 1)</p> <p>"... If you're a junior pharmacist rotating around every 6 months you barely know the ward yourself, you don't know any of the people you're working with ... you might not be able to provide IPE." (Academic; GI 1)</p>	
(ii) Student pharmacist factors	Presage; process
<p>"It's good when you have keen students ... Sometimes, it can be difficult when you've got students that are not particularly engaging or not particularly motivated ..."</p> <p>(EL facilitator; community; GI 4)</p> <p>"I keep trying to look at maybe the medical students ... They come, and they obviously are very well prepped by the universities, and they come out maybe more operational and they actively seek out their learning opportunities rather than maybe being handheld which is maybe what I feel like we're doing for pharmacy students because they just don't have the same knowledge ..."</p> <p>(EL facilitator; hospital; GI 5)</p> <p>"... Where there's uncertainty around where their [student pharmacists] competence lies, they're [EL facilitators] probably not keen to push that on to other health care professionals." (Practice educator; GI 1)</p>	
(iii) Logistical factors	Presage; process
<p>"Within the scope of this five-day placement, what is possible? But also, what's the most valuable for the student pharmacist? It's probably not to sit with a GP for a day, it's probably to get a really good grounding of that area of pharmacy practice ..."</p> <p>(Practice educator; GI 1)</p> <p>"... Because I participate in an MDT ward round, they get a bit of IPE through the teaching ward round but it's quite hard because they come so frequently ..."</p> <p>(EL facilitator; hospital; GI 5)</p> <p>"... If I had other health care professional students around, I would [plan IPE] but the week we had ours [student pharmacists], we didn't ... it's quite difficult if there's nobody else around." (EL facilitator; primary care; GI 5)</p> <p>"... I always try and encourage facilitators to forward plan placements and that is hard, no matter what sector ... with community, it's totally dependent on footfall on that day..." (Practice educator; GI 2)</p>	
(iv) Regulatory factors	Presage
<p>"The criteria are so strict about what they have to cover in that time, whereas I think it was a bit more self-directed by the student, they would gain more from it." (EL facilitator; primary care; GI 5)</p> <p>"They want the students to actually be involved, they want them to be doing things, they don't want them to be shadowing only, they want them to be working ... it's going to be trying to find that balance between expose them to other health care professionals but knowing that if they're doing that they're not going to be working as such ..."</p> <p>(EL facilitator; hospital; GI 5)</p> <p>"... I think I'd asked about switching a student's hours to start earlier and finish earlier because there's things that go on like ward rounds ... I was told like you know it's funded by the government, and they absolutely can't deviate from these 9 to 5 h ..."</p> <p>(EL facilitator; hospital; GI 5)</p> <p>"... There's probably some issues around the governance of that because they're going across sites and things that can be quite difficult and for sort of student welfare and who's, who's responsible?" (Practice Educator; GI 2)</p>	

Abbreviations: EL, experiential learning; GI, group interview; IPE, interprofessional education; MDT, multidisciplinary team.

3.1.2. Subtheme: Lack of Specific IPE Focus

Participants referred to a lack of IPE learning outcomes included in EL handbooks; this was perceived by some participants as emphasizing the prioritization of uniprofessional learning. In addition, 1 practice educator referred to a lack of IPE focus in PFEL training.

3.1.3. Subtheme: Perceptions of IPE/Collaborative Practice

Overall, the perceptions of IPE were positive; participants viewed it as essential to prepare student pharmacists for future collaborative

Table 5
Theme 3 Supporting Quotations Linked to Subthemes and the Biggs 3P Model Domains.²⁰

Theme 3: Rethinking current IPE provision	
Subtheme	3P (presage, process, product) domain
(i) More focus on a continuum of learning	Presage; process; product
<p>"There needs to be kind of expectations within the health boards that actually this would be an ask in terms of students getting experience with other health care professionals and if you've got that support it's easier to build that into what you're doing." (Practice educator; GI 3)</p> <p>"It's probably something that if introduced early...you do it kind of very early on in their undergraduate program that probably helps, well, I imagine that would have helped me overcome some of the barriers ..."</p> <p>(EL facilitator; hospital; GI 4)</p> <p>"There's going to be a natural progression, there's going to be more interprofessional learning with the introduction of the IP [Independent Prescribing] course, it's obviously just making sure that as you say people are open to that. That's the only way it will work." (Practice educator; GI 3)</p> <p>"I see in training prereg pharmacists [trainee pharmacists] who aren't willing to go and talk to someone or aren't willing to talk to another health care professional because there's, you know, they're nervous about the status, they don't want to look silly ..."</p> <p>(Practice Educator; GI 2)</p>	
(ii) Need for a more coordinated approach	Presage; process; product
<p>"I would say very little. I am not aware of what's currently offered and what they currently do interprofessionally. I wouldn't know." (EL facilitator; hospital; GI 5)</p> <p>"It's all very fractured in my opinion, that everybody is doing different things. There's no continuity. I think going forward the planning and communication side of it is a real issue ..."</p> <p>(EL facilitator; out of hours service; GI 5)</p> <p>"... Feedback's really important from the universities because how else are you supposed to know if things are working? And it needs to be at the time of training or soon after. There's no point in giving it to you 4 months down the line ..."</p> <p>(EL facilitator; out of hours service; GI 5)</p> <p>"... Having a discussion with other health care professionals round about the benefits of, of doing the interprofessional learning I think is important because, if everybody's on board and can see where there's a real kind of bonus to have everybody involved then it's an easier conversation." (Practice educator; GI 3)</p> <p>"... Nearly all the health boards are looking to appoint people in primary care and in hospital, as a result of ACT funding. They're looking at how these places are planned and facilitated and that would be the sort of go to place to say, you know, that's where we can get the integration with planning, have they got contemporary you know peers in medicine, peers in nursing, peers in any of the different therapies, etc., that they can liaise with to build in opportunities?" (Academic; GI 2)</p> <p>"It's difficult. Medics and other professions have their own students and their own sort of priorities and, sometimes, it can be quite different to what we want them to deliver to our students ... But I don't think it's something that should be ignored." (Practice educator; GI 2)</p> <p>"... Awareness of the different learning outcomes that the other professions and the kind of different stages that the students would be at would be key to actually being able to facilitate that [planned IPE] well." (Practice educator; GI 3)</p> <p>"... Maybe even in some of the [PFEL] sessions could we even have kind of a representative from another health care profession come along and kind of talk about how it works and what sort of kind of learning that they get out of working this way..." (Practice educator; GI 3)</p>	

Abbreviations: ACT, Additional Cost for Teaching; GI, group interview; IPE, interprofessional education; PFEL, Preparation for Facilitating Experiential Learning.

practice. Participants referred to IPE supporting understanding of colleagues' roles and areas of expertise, the pharmacist's role in the wider MDT, and confidence building in communicating with other health and social care professionals. Participants referred to the impact collaborative teamwork had on improving patient care and outcomes. Some sector-specific perceptions of collaborative practice were identified mainly relating to the community pharmacy setting and a perceived cultural barrier to professional communication due to its insular nature, potentially inhibiting IPE opportunities while also influencing student pharmacists' learning through negative role modeling. Generally, MDT members were perceived to be receptive to IPE.

3.2. Theme 2: Factors Affecting IPE Delivery and Student Pharmacist Learning

Participants provided valuable insights into factors facilitating or hindering student pharmacists' interprofessional learning.

3.2.1. Subtheme: EL Facilitator Factors

Enthusiasm to prioritize IPE or lack of by individual EL facilitators was identified as a potential facilitator or barrier. Some participants referred to their self-perceived EL facilitator role as focusing on the pharmacist and pharmacy profession; 1 participant referred to the positive impact IPE opportunities had on their career path. Participants spoke about a negative culture among EL facilitators around EL facilitation in general and, more specifically, IPE facilitation. This, in some cases, was attributed to individual personalities with some EL facilitators being viewed as risk-averse by nature, leading to "trust" issues. Some participants spoke about the added workload associated with EL facilitation (preplanning activities, organizing shadowing opportunities with interprofessional colleagues, added time supporting student pharmacist learning) as contributing to the negative culture surrounding EL facilitation. One participant working in a primary care setting commented that unlike GPs, EL facilitators did not have contractual protected training time. An EL facilitator's lack of expertise, confidence, and integration within the MDT were perceived as potentially limiting IPE opportunities.

3.2.2. Subtheme: Student Pharmacist Factors

Participants referred to student pharmacist factors, such as motivation, engagement, and expectations, as potential facilitators or barriers to learning. In addition, participants spoke about observing varying degrees of confidence, knowledge, and competence between student pharmacist peers and between student pharmacists and students from other professional groups. One participant referred to this uncertainty around individual student pharmacists' competency levels contributing to the reluctance of some EL facilitators involving other members of the MDT, which could lead to missed IPE opportunities. In addition to gaps in clinical knowledge, participants referred to a lack of student pharmacists' understanding "about anybody's real role," including those of pharmacists working in different areas of practice, particularly, primary care. These misconceptions, in turn, were perceived to lead to unrealistic student pharmacist expectations and an inability to move away from a uniprofessional focus.

3.2.3. Subtheme: Logistical Factors

Participants referred to the short duration of placements compared with that of students from other professions as a limiting factor; some participants expressed the tendency to take more of a uniprofessional focus and not prioritize IPE for this reason because they perceived this to be more relevant to a student pharmacist's learning and professional development. Another issue highlighted was the increasing student pharmacist numbers in university cohorts, presenting a challenge not only for EL facilitators but also for facilitators from other professions. Participants spoke about a lack of colocation of students due to timetabling issues; several referred to missed IPE opportunities as a consequence. Sector-specific logistical factors were brought up in discussions mainly relating to the limited ability to plan IPE activities in community pharmacy due to the remote nature of this work environment and because of the unpredictability of the daily work context.

3.2.4. Subtheme: Regulatory Factors

Requirements set out by universities were viewed as too stringent and mainly focused on uniprofessional aspects of pharmacy practice. In addition, the agreement in Scotland for student pharmacists to be actively "doing" rather than observing/shadowing was perceived to encourage a uniprofessional focus, limiting IPE opportunities. Other factors highlighted, referred to contractual agreements regarding student

pharmacists' working hours and a lack of flexibility which restricted participation in, for example, early morning MDT ward rounds. Governance issues relating to quality assurance, student welfare, and indemnity cover were raised during discussions; some participants expressed concerns about student pharmacists spending considerable time with other professionals and moving across sites. Induction including familiarization with standard operating procedures was perceived necessary but a contributor to limiting IPE opportunities. Ensuring provision of equitable experiences for all student pharmacists was discussed; informal IPE was referenced in this context.

3.3. Theme 3: Rethinking Current IPE Provision

3.3.1. Subtheme: More Focus on a Continuum of Learning

Participants spoke about IPE being prioritized throughout all areas of pharmacy education. Introducing the concept "from day 1" of the MPharm program, ensuring the theme is interwoven throughout the whole curriculum including the EL curriculum, was perceived as important to encourage the move away from a uniprofessional "pharmacy, pharmacy, pharmacy" focus and a natural progression toward integrating a collaborative approach into pharmacy practice. This was perceived as an important step in setting up an expectation that IPE would be incorporated in all placements. Changes to the GPhC standards stipulating that in 2026, all pharmacists in the United Kingdom will be independent prescribers at the point of registration were perceived as opportunities supporting this approach, integrating a continuum of interprofessional learning throughout the 4-year MPharm program and into the Foundation Training Year.⁶ One participant also viewed this focused approach as an important aspect of professional development extending beyond the initial education and training of pharmacists and aligning with the Royal Pharmaceutical Society's credentialing curricula for advanced and consultant-level pharmacists.²⁴

3.3.2. Subtheme: Need for a More Coordinated Approach

Participants viewed increased collaboration as the best way to support the development of IPE opportunities. EL facilitators had very limited or no knowledge of what campus-based IPE activities student pharmacists completed. The lack of knowledge extended to what student pharmacists covered during previous placements; this was perceived as hindering a structured and organized approach to learning. A participant raised the point that it would be useful to know how student pharmacists respond to feedback provided by their EL facilitator at the end of the placement, mainly how that feedback is taken forward to support professional development. Administrative issues relating to information provision from the universities were highlighted; some EL facilitators discussed aspects of inadequate timelines (with information provided 6 weeks before placement), hindering the planning of IPE activities with practice colleagues. Another issue raised was the need for timely feedback after placements.

Participants viewed collaboration between interprofessional practice teams as imperative to the success of new IPE developments. One spoke about how planned IPE between student groups could be organized by interprofessional staff appointed to education and training roles in health boards. However, concerns were raised that involvement in facilitating these activities were outside of an EL facilitator's role and that additional training and funding would be necessary if this became an expectation. Issues were also highlighted about IPE facilitation, mainly regarding clarification of the learning outcomes of students from different professional groups.

Suggested modifications to PFEL training included introducing IPE case studies and involving practice educators from other professional groups in workshop delivery. Peer review/support sessions were highlighted as presenting opportunities to increase focus on IPE and collaborative practice. EL facilitators spoke about sharing tried and tested activities implemented during placements; this was perceived as supporting the development of less experienced EL facilitators while also reducing duplication of work and workload pressures.

4. Discussion

This study explored issues relating to structures and processes supporting IPE during EL placements for student pharmacists in Scotland, as perceived by key stakeholders (academics, practice educators, and EL facilitators). The analysis of discussions identified themes relating to “what is happening,” “what works,” and “what changes are needed” to support interprofessional learning and the success of new IPE initiatives. The findings highlight the dynamic nature of the teaching/learning environment during EL placements and identified challenges but also opportunities, providing direction for future IPE developments.

A key finding is that most IPE is informally planned or opportunistic in nature, mainly involving interactions with qualified health and social care professionals. A few examples of formally planned activities involving varied student groups were identified. Although these results highlight the need for a more focused approach to develop formally planned IPE activities, they also draw focus to changes needed to maximize learning through informal IPE opportunities, which previous studies evidence as supporting the development of collaborative competencies. Kent and colleagues²⁵ explored the value of informal IPE opportunities where preregistration students observed other health care professional-patient consultations in clinical settings. The results identified positive learning outcomes; the authors concluded that unplanned IPE could offer interprofessional learning during practice-based placements.²⁵ Zhao and colleagues²⁶ report informal opportunities were viewed as valuable learning experiences by undergraduate speech pathology students, suggesting this could support collaborative competency development. The authors report missed learning opportunities due to students and supervisors not always recognizing the potential for interprofessional learning that informal experiences present.²⁶ This approach to teaching and learning (3P:Process) links to all 3 themes and a number of subthemes identified in this research.

Participants referred to the lack of specific IPE learning outcomes in EL handbooks (3P:Presage). Nisbet and colleagues¹⁵ emphasize the importance of explicitly incorporating learning outcomes to support collaborative competency development, alongside profession specific learning outcomes, conveying the message that IPE is a core component of the curriculum and an expectation during placements. Increasing visibility through the addition of IPE learning outcomes aligned with assessment tasks would clearly articulate university requirements to EL facilitators and student pharmacists, encouraging both to move away from a uniprofessional focus (3P:Process). Participants referred to the lack of student pharmacists’ knowledge of professional roles (3P:Presage). The Centre for the Advancement of Interprofessional Education’s Interprofessional Education Guidelines articulate the complementary nature between campus- and practice-based IPE; maximizing campus-based IPE could improve student pharmacists’ knowledge, skills, and confidence, which, in turn, could build EL facilitators’ willingness to trust them in activities.¹⁸ Furthermore, increased student pharmacist understanding of the relevance of IPE could encourage them to take a proactive approach to learning and seek out IPE opportunities (3P:Presage).

Regulatory factors such as university requirements, government contractual agreements, and governance issues (3P:Presage), identified by participants as potentially hindering informal IPE opportunities, need clarification. More flexibility with placement working hours enabling participation in early morning MDT ward rounds is one example of overcoming missed IPE opportunities. A continuum of learning (3P:Process) was identified as contributing to informal learning by supporting cultural changes at the individual and organizational levels (3P:Presage).

This study shows that the overall participants’ perceptions of IPE and collaborative practice were positive but also highlighted barriers that could impact translation of positive values into practice (3P:Presage), corroborating findings from previous research. Ong and colleagues²⁷ report clinician educators from various health care

disciplines perceiving IPE as compromising efficiency in delivering patient care. O’Carroll and colleagues²⁸ report meso- (administrative, leadership) and macro-level factors (political and institutional support) as impacting on implementation of IPE and collaborative practice in practice settings. In addition, the authors report misconceptions around the understanding of what interprofessional practice learning really means leading to limited IPE activities and missed learning opportunities.²⁸ In our study, participants referred to sector-specific perceptions of IPE and collaborative practice potentially influencing the student pharmacists’ learning through negative role modeling (3P:Presage). Published literature refers to the powerful influence of the hidden curriculum.^{12,29–31} Thistlethwaite and colleagues³² refer to this as “unwritten norms, values, and beliefs transmitted to learners through their immersion in the clinical environment ...” Participants identified training opportunities as ways of changing the ethos around EL facilitation in general and IPE facilitation (3P:Presage).

The paucity of formally planned IPE opportunities currently on offer, as identified by participants in our study, highlights the need to increase focus on developing a practice-based EL curriculum that includes formally planned IPE activities involving students from multiple health and social care professions (3P:Process), also involving trained facilitators representing different professional groups (3P:Presage). Poirier and Newman report IPE being delivered as a series of isolated events and call for a move toward a strategic model.¹⁶ Participants identified collaboration as essential to developing formally planned IPE activities; coordination between universities and placement providers, together with MDT input, is essential. This was perceived as overcoming barriers related to the comprehensive planning necessary to manage logistical factors relating to, for example, student timetabling (3P:Presage). Participants’ views corroborate findings from previous research that such an approach must also consider funding provision for facilitator training and adequate cover for teaching/training time.^{13,33} Participants expressed a hesitancy in relation to familiarization with learning outcomes for other student professional groups and concern about facilitating effective learning (3P:Product). A mapping exercise conducted by Steven and colleagues³⁴ identified a considerable overlap in outcomes and standards expected of undergraduate health care students in the United Kingdom; a set of common IPE learning outcomes do not exist. Work to produce these could be 1 way forward, supporting the move toward interprofessional mentorship.³⁴

A strength of the study was the qualitative research methodology, allowing in-depth exploration of participants’ perspectives. In addition, underpinning the research with systems theory allowed consideration of multifactorial aspects and potential links between factors. Generation of data from a Scottish context is a limitation; the findings may lack transferability to other countries. Data collection during the COVID-19 pandemic presented challenges to participant recruitment; it is possible that data saturation was not achieved and not all stakeholder perspectives were included. However, the data support and add new perspectives to those generated from previous research conducted in Scotland.¹³ Future research should include exploring the views of student pharmacists and the involvement of multiple stakeholders, including those from different professional backgrounds, in the coproduction of IPE activities and resources. Finally, not all transcripts were independently analyzed by 2 researchers; however, multiple measures were taken to minimize researcher bias and increase the credibility of findings.

5. Conclusion

Exploring structures and processes supporting IPE during placements for student pharmacists in Scotland, this study identified that most IPE is informally planned by individual EL facilitators or opportunistic. Stakeholders identified challenges but also opportunities. Insights have provided a strong foundation that will inform future developments to ensure new initiatives are conducive to supporting effective interprofessional learning during placements.

Author Contributions

Roles/writing – original draft: C.D. *Conceptualization:* C.D., S.C. *Data curation:* C.D., B.A. *Formal analysis:* C.D., S.C., B.A. *Investigation:* C.D. *Project administration:* C.D., S.C., B.A. *Supervision:* A.A., S.C., A.P. *Funding acquisition:* S.C., A.P., B.A. *Methodology:* All authors. *Writing – review & editing:* All authors.

Declaration of Competing Interest

None declared.

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Appendix A. Supporting information

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