



Layered learning for pharmacy preceptors

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Introduction

The layered learning practice model (LLPM) is a hierarchical teaching approach that incorporates at least two learners who are in different stages of their pharmacy education, training, or career. Learning models that incorporate similar concepts include near-peer teaching, peer teaching, and student teaching assistants. Ultimately, the goal of layered learning is to utilize existing resources to promote the effective and efficient use of pharmacy learners' skills and knowledge. In this way, learners in various stages can informally train current and future pharmacists and provide insight into the next steps of their professional careers.

The LLPM may not always be formally introduced or explained, yet it is frequently

integrated into different stages of a pharmacist's professional career. For example, APPE and IPPE students may complete rotations at the same site, which may lead the APPE students to naturally assume a mentorship role when working with the IPPE students. Similarly, postgraduate trainees, such as pharmacy residents and fellows, in the early stages of their postgraduate programs often are asked to coprecept or precept students. Each of these instances occurs under the supervision of a more seasoned pharmacy preceptor, who serves as the "top layer" of the model. To most effectively take advantage of the LLPM, it is important to take the time to orient all learners to the purpose of the model.



Teaching about precepting

Most pharmacists are familiar with the concept of precepting, as Doctor of Pharmacy programs require the successful graduating pharmacist to have completed a predetermined number of experiential educational experiences. Pharmacists may be asked to take on both a preceptor and a learner role in different circumstances, depending on the stage of their professional career.

However, few pharmacists receive formal education and training on how to be a preceptor. Precepting is not always routinely taught in health professions education, and sometimes it is assumed to be an inherent skill to contribute to future generations of student pharmacists.

In practice, there are four major roles of a preceptor. It is essential to utilize each role throughout an experience to challenge learners to develop themselves as an aspiring pharmacist. These roles are outlined in Table 1.

Pharmacists who undergo postgraduate training are often required to complete a teaching certificate program that should provide this framework and encourage trainees to apply these roles in their own teaching and precepting. However, it is speculated that this framework is not routinely taught to those outside of postgraduate training and even across different postgraduate training programs, teaching certificate program components are not standardized. Precepting roles may be unfamiliar to those included in the LLPM such as student pharmacists and/or other health professions. Therefore, each member of the LLPM should be oriented to what the preceptor roles are and which ones they may be expected to demonstrate.

Table 1. Preceptor roles

Precepting role	Description	Example
Direct instruction	The preceptor is teaching foundational content to establish the baseline for future activities for a learner.	<ul style="list-style-type: none">• The preceptor and learner reviewing disease states together.• The preceptor assigning lectures and readings.
Modeling	The preceptor is demonstrating an activity via “thinking out loud” so that the learner has an example of how to conduct an expected activity.	<i>For clinical sites:</i> <ul style="list-style-type: none">• The preceptor walking through the step-by-step process of how the preceptor would work up a patient.• The preceptor interacting with patients or health care providers and the learner observing these interactions. <i>For nonclinical sites:</i> <ul style="list-style-type: none">• The learner and preceptor reviewing a recent project and walking through process of project development and steps to go live.• The learner shadowing the preceptor during meetings with other disciplines.
Coaching	Allowing the learner to complete the activity as you observe and providing specific and criteria-based feedback.	<i>For clinical sites:</i> <ul style="list-style-type: none">• The learner interacting with a patient/other health care provider with the preceptor nearby. <i>For nonclinical sites:</i> <ul style="list-style-type: none">• The learner developing a project outline and reviews with the preceptor.
Facilitating	Allowing the learner to independently complete the activity while you remain available as needed.	<i>For clinical sites:</i> <ul style="list-style-type: none">• The learner taking over their own patient cases and meeting with the preceptor to pre-round or debrief after a patient visit. <i>For non-clinical sites:</i> <ul style="list-style-type: none">• The preceptor giving the learner an open project to take the lead on and meeting as needed for questions and comments before final submission.
Roles	Certain roles are not as structured as others and come up at multiple points throughout the learning experience	<ul style="list-style-type: none">• Role model: Holding an intentional discussion during which preceptors discuss their behavior and decisions during challenging situations<ul style="list-style-type: none">◦ Requires that students see preceptors practicing as professionals.• Evaluator: Assuring the student pharmacists have every opportunity to meet all requirements of the rotation.<ul style="list-style-type: none">◦ Preceptors should make certain that only those learners who have demonstrated competency are allowed to practice independently.

Types of layered learning

When thinking about the LLPM, examples that often come to mind are first- or second-year pharmacy residents co-precepting APPE students or APPE students coprecepting IPPE students. However, layered learning can be implemented with different types of learners. Examples may include a PGY2 resident to a PGY1 resident, a new practitioner to a resident, a combination of different professions aiding each other, or a combination of any of those previously stated (see Table 2). An example of different professions could be a medical student showing parts of a physical exam and how that is conducted to a student pharmacist or a student pharmacist showing a medical student how to perform a medication reconciliation.

Table 2. Types of layered learning

- New practitioner to postgraduate trainee (e.g., a resident or fellow)
- Postgraduate trainee to APPE
- APPE to IPPE
- PGY2 to PGY1
- Pharmacy student further along in the didactic curriculum to pharmacy student earlier in the didactic curriculum
- Different professions (e.g. physicians and student pharmacists or medical students and student pharmacists)
- Near-peer (e.g., a student who has completed a required IPPE or APPE and is now completing a second elective APPE)
- Any combination of the above



Roles of different layers

Since the LLPM inherently has many layers of preceptors and learners involved, a clear understanding of roles and responsibilities of each person involved is important to avoid confusion and frustration.

Layered learning structures typically involve at least three layers: the senior preceptor, a postgraduate trainee (e.g., resident or fellow), and a student pharmacist. Details of the roles and responsibilities of each layer is provided in Table 3.

Table 3. Roles of different layers in layered learning

Name	Role	Example responsibilities
Primary preceptor	The preceptor is listed on file with the school of pharmacy or residency program and oversees the full rotation experience with ultimate responsibility for evaluations, assignment grades, and patient care.	<ul style="list-style-type: none">• Communicate with the PharmD program for the scheduling, placement, and onboarding of the student within the pharmacist's organization.• Create or update resident learning experience description and student syllabus.• Orient learners to practice site and layered learning model.• Define expectations and responsibilities of trainees, especially regarding communication and responses to questions and concerns by the student.• Oversee clinical activities and oversee residents as preceptor and assist in providing feedback to students.• Provide resources and feedback for the resident's development of teaching and evaluation skills.• Monitor the progress of the rotation throughout.• Ensure all requirements, activities, and evaluations have been completed by the required dates.
Resident	Residents may serve as the preceptor for other learners while receiving modeling, coaching, and feedback from the primary preceptor. While residents may not be the formal preceptor on record due to eligibility requirements by the PharmD program or residency accreditation requirements, it should be clear to students that the resident is working alongside the primary preceptor for their learning experience and will be providing feedback and evaluations. Residents often have precepting-related goals and objectives which are evaluated throughout the year, with a goal of achievement for the residency program by the end of the residency year (see section entitled Required competency areas, goals, and objectives related to precepting for ASHP-accredited PGY1 pharmacy residency programs).	<ul style="list-style-type: none">• Orient students or lower-level residents to practice site and learning experience.• Aid in development of student learning activities, schedule, and calendar.• Oversee students and incorporate them into clinical activities on site.• Provide supervision during patient care activities.• Obtain resources needed to perform required activities.• Lead topic discussions and other educational activities.• Evaluate students and provide summative and formative feedback when needed.• Seek feedback on precepting skills from primary preceptor and students.

Student	A student is a student pharmacist enrolled in an ACPE-accredited PharmD program and who is participating in IPPE or APPE rotations to apply what was learned in the didactic portion of their curriculum.	<ul style="list-style-type: none"> • Report directly to the resident or higher-level student preceptor. • Actively participate in patient care and rotation activities. • Provide feedback on the LLPM and resident performance as an experiential educator. • Provide feedback on primary preceptor and rotation to the PharmD program.
Near-peer	A near-peer is someone who has gone through an experience one or two years/steps ahead of someone they are mentoring. Examples of this include student pharmacists in their final professional year mentoring students who are in earlier years of the curriculum. Near-peers serve as mentors or tutors to others by working alongside other preceptors or instructors to train their less experienced peers in different processes and procedures.	<ul style="list-style-type: none"> • Orient students on a rotation to different policies and procedures related to the site (examples may include training students on different computer systems or training them on workflow). • Provide psychosocial support to individuals at the practice site. • Provide feedback to students on performance based on expectations outlined by other preceptors. • Give status updates regarding students' performance and comfort level to senior preceptors.

Abbreviations: LLPM, layered learning practice model.
Source: Adapted from Reference 1.

Required competency areas, goals, and objectives related to precepting for ASHP-accredited PGY1 pharmacy residency programs

Goal R4.2: Provide professional and practice-related training to meet learners' educational needs.

Objective R4.2.1: (Evaluating) Employ appropriate preceptor role for a learning scenario.

Sources: Adapted from References 2 and 3.

Benefits and challenges of layered learning



Layered learning is mutually valuable for all individuals involved. It offers the following benefits:

- **Increased teaching and learning opportunities:** The LLPM allows residents and primary preceptors to learn from each other and provide different perspectives to students. By spreading out precepting responsibilities, more time can be dedicated to scholarship or administrative responsibilities.
- **Dual mentorship:** Students and residents will teach other learners and provide feedback on their experiential learning. In addition, they will also receive feedback to develop their skills, enhancing their own comprehension of the subject matter and staying up to date.
- **Early preceptor development:** Students and postgraduate trainees can practice their teaching skills earlier in their careers, enabling them to become more practice-ready. Additionally, this leads to further development of leadership and mentorship skills in a less intimidating environment.
- **Observations of preceptor development:** Learners can observe the progression of preceptor development and observe the resident's level of knowledge in comparison to their own.
- **Increased opportunities for learners on site:** The LLPM allows for there to be more learners per rotation/site and increased opportunities for direct patient care and clinical activities, like researching primary literature to optimize evidence-based practice in caring for patients.
- **Increased feedback:** The LLPM provides many opportunities for feedback both from near-peers and primary preceptors, which can be used to help preceptors, residents, and students grow and improve different skills.
- **Improved learner comprehension:** The concept of learning from an individual who is a near-peer may improve learner understanding of a topic compared to the learning from a preceptor/professor. A near-peer may not be considered the content expert and may have a more simplified method of teaching about a topic compared to a more experienced preceptor/professor who may struggle to differentiate between common knowledge and knowledge a specialist has.
- **Increased networking opportunities:** Integrating a LLPM can connect individuals who are at varying points in their pharmacy career. This can promote mentor relationships to form naturally as the lowest-tier learner may be interested in the path the middle-tier learner has taken and/or may seek advice on struggles the lowest-tier learner is experiencing in their current learning phase.
- **Increased professional satisfaction:** Teaching others and contributing to the growth and professional development of pharmacists may increase job satisfaction by providing a sense of “giving back to the profession” and increased camaraderie with future colleagues.



Implementing the LLPM is beneficial; however, challenges may arise in the process. The following challenges or barriers should be considered, along with possible mitigation strategies:

- Feedback expectations and styles: Preceptors and learners may have different expectations or styles of giving feedback. Training for residents early in their program year may be helpful since they are new to the role. Additionally, setting aside time for feedback is important, as they are still learning as well. Intentionally taking time to find out how the learners prefer to give and receive feedback can ensure expectations are met.
- Adapting to different learners: Learners have various knowledge/skill levels, attitudes, and motivations that may differ from those of their preceptors. This can lead to challenges in being

able to determine who is fit to teach. Personalities may clash, too, impeding the ability to build rapport. Identifying trainees' interests and knowledge early in a rotation can provide a baseline of what they know to provide an adequate rotation experience.

- Time management: Coordinating multiple people's schedules and balancing everyone's needs can be complex. Additionally, preceptors and residents often wear many "hats" in their positions, with multiple needs from multiple people. Using a centralized schedule and collaborating between the primary preceptor, resident, and student may lessen the impact of juggling multiple schedules. To prevent residents from becoming too overwhelmed with adding precepting to their other responsibilities, open lines of communication between the resident and preceptor should be maintained to discuss shifting around priorities if/when needed.
- Physical space: Sometimes there may not be enough computers, entry badges, or chairs for learners. Implementing projects, table rounds, telehealth, and other activities that do not require a learner to be on site may help with this barrier. Utilizing learners in different roles may free up space and time for various levels of learners to complete different activities.
- Perceived quality of feedback from learner: "Younger" or "junior" trainees may feel that feedback from the mid-level learner will not be the same quality as the feedback that could be received from the practicing pharmacist preceptor. Providing training on feedback can promote more consistent delivery of feedback to everyone.

Implementation of layered learning or examples of layered learning models

According to Loy and colleagues, a layered learning practice model can be implemented into a rotation with the following four steps¹:

1. Orientation to the layered learning model:

- Clarify the expectations and roles of learners as preceptors.
 - Do this for each activity;
 - Patient care (e.g., workup, recommendations, medication reconciliations, documentation, patient education).
 - Topic discussions.
 - Patient case presentations.
 - Journal club presentations.
 - In-service presentations.
 - Scholarship or research projects.
 - Discuss expectations for communication (e.g., IPPE students should bring their questions to the APPE students).
 - Consider including preceptor development roles:
 - Develop syllabus/schedule.
 - Function as a primary preceptor.
 - Deliver feedback to learners.
 - Contribute to/complete learner evaluations.
- Set expectations for learners to provide feedback to co-preceptors on precepting skills.
- Provide resources for preceptor development and evaluation, such as:
 - *Habits of Preceptors*
 - *Preceptor 101: A Guide for Preceptors*

2. Pre-experience planning:

- Create the syllabus and schedule.
 - Involve senior learners.
- Set communication expectations.
 - Consider communication methods (e.g., phone, e-mail) and who is responsible for answering what questions.
- Set both personal, professional, and rotation-specific goals.
- Consider space limitations.
 - Plan for how all layers can be involved.

3. Implementation:

- Review of state regulations, certifications, and/or institutional policies and procedures to ensure senior learners are adhering to proper protocols and teaching correctly.
- Preceptors should model their own precepting style.
- Observe and assist with senior learner precepting abilities (e.g., APPE student for IPPE student or PGY1 resident for APPE student).
- Provide regular feedback, close monitoring, and follow-up on the process.

4. Post-experience evaluation:

- Provide and obtain feedback on the layered learning model.
- Determine actionable items for improvement.

Table 4 describes a real-life example of how to incorporate these four steps of the LLPM.

Table 4. Example of implementation of layered learning

Setting: Outpatient internal medicine clinic. Resident attends clinic once weekly for 8 hours for 6 months.

Layered learning hierarchy: Primary preceptor → PGY2 resident preceptor → APPE → IPPE

Orientation is provided from the primary preceptor to all learners explaining clinic flow, expectations of each clinic day (including who is going to see which patients, who is going to document, and who is going to handle other patient activities such as following up on medication needs, any barriers to medication access, and patient calls), and layered learning model expectations (e.g., IPPE students will report primarily to APPE students and APPE students will report primarily to PGY2 resident). Precepting is modeled through the first week and shifted to coaching/facilitating as learners are ready.

The PGY2 resident then gradually takes on precepting and patient care responsibilities and provides feedback at the end of the day to the students. They may even orient the APPE and IPPE students if all learners are not starting concurrently. The resident can provide direct instruction regarding specific disease states and/or model a patient encounter as well as coach/facilitate an APPE student through each of the responsibilities for the day listed above. Once the APPE student develops their knowledge/skills and gains independence, the APPE student can do the same for the IPPE student through any of the mastered tasks such as documentation, completing patient calls, pending orders, or preparing for a patient encounter while the resident observes, allowing the opportunity for feedback.

While the students who are functioning independently are conducting patient visits, the resident can complete other tasks, expanding the efficiency and impact of the pharmacy team. Overall, the primary preceptor should provide feedback to the resident in the same manner that feedback is provided to the APPE student(s) and IPPE student(s) daily or in the manner that is preferred by the resident so that the resident can continue to grow as a preceptor.

The primary preceptor should still be the one to oversee all patient care activities in the clinic. This model can also be implemented with a PGY1 resident and it is important to recognize that the degree of modeling/coaching necessary for each learning preceptor will vary, but developing these skills earlier will expand our available preceptor pool, improve our future preceptors, and hopefully also improve the quality of our future generations of practicing pharmacists.

In conclusion, in any setting, with any pharmacy task, layered learning can be implemented if you have more senior learners teach the skill or facilitate discussion with the junior learner.

Best of luck with your precepting journey. Please be sure to visit the [APhA Preceptor SIG page](#) for more precepting resources.

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Resources

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