Twelve Tips for Synergistic Delivery of Remote Advanced Pharmacy Practice Experience Rotations [version 1]

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Abstract
This article was migrated. The article was marked as recommended.

In response to the COVID-19 pandemic, many institutions changed their staffing models to incorporate remote work which created a need for pharmacy faculty and preceptors to also shift their rotation experience to a remote format. While initially this may be a daunting task, remote experiences have the potential to equip students with unique skillsets while offering a mutually beneficial effort towards patient care and/or other responsibilities. In addition, these remote experiences can offer students a more customized rotation and a behind the scenes look at the preceptor’s career. This article provides 12 tips for developing a remote learning experience.

Keywords
Experiential Education, Remote Learning, Health Professions Education, Educational Strategies

Migrated Content
"Migrated Content" refers to articles submitted to and published in the publication before moving to the current platform. These articles are static and cannot be updated.

Open Peer Review

1. Amjad Qandil,
2. Mojdeh Heavner,
3. Ken Masters, Sultan Qaboos University

Any reports and responses or comments on the article can be found at the end of the article.
Introduction
Remote advanced pharmacy practice experience (APPE) rotations are powerful tools to maintain rotation site availability in the era of COVID-19 and have unique synergistic potential. In response to the COVID-19 pandemic, many institutions changed their staffing models to incorporate remote work and/or telehealth to mitigate virus transmission while still providing essential pharmacy patient care services. As a result, many student experiential policies limited rotation availability or onsite experiences. Pharmacy faculty and preceptors were asked to provide remote patient care or remote alternative learning experiences (e.g. academia rotation). While transitioning to an alternative APPE model can be challenging, the ability to provide a remote experience with flexible activities and timelines has unique appeal that can engage students in new skillsets while providing mutually beneficial effort on daily responsibilities and scholastic projects. Here, we outline 12 tips for successful delivery of a remote APPE. Although these tips are drawn from our experiences as preceptors of pharmacy student APPEs, many of us also serve as preceptors for medical student and pharmacy post-graduate resident experiences. The tips presented can be widely extrapolated to learners from many healthcare disciplines.

Tip #1: Mentor and model for your students
Deliberate assignment of activities associated with professional development and scheduled discussion of the student’s professional aspirations is a mutually beneficial addition to any rotation. Assigned activities can include completion of personality inventories and other reflective exercises. Scheduled time purely focused on the discussion of the student’s global career aspirations can also support how other assigned activities support growth and development. Creating a sense of investment is discussed in Tip 6 but is certainly aided by deliberate mentorship by the preceptor and may be particularly advantageous given the millennial generation’s emphasis on understanding the “why” and the importance of a particular task (Waljee, Chopra and Saint, 2020). Students are often quite observant to how a preceptor structures their day and their attitudes towards different activities. Scheduled reflection time to discuss how the preceptor prioritizes their day and aspects in their career can be fruitful areas of discussion. Ultimately, a remote rotation has the potential to be a highly productive and collaborative experience for both preceptor and student, and this experience largely depends on the development of a meaningful relationship. Indeed, the preceptor often learns new things from the student, like new technology platforms.

Tip #2: Align assignments with current priorities
Despite the strong temptation when designing your remote rotation experience to create new activities that provide a comprehensive experience for your student, be intentional in assigning mutually beneficial activities. Quite simply, do not create more work for yourself as a result of having a student on a remote rotation. Evaluate your own to-do list and look for ways to break down larger projects into activities a student could engage in. Brainstorm on projects that have been on the backburner and evaluate if the student can help revitalize a project that has lost steam. Ultimately, assigning deliverables that are within the scope of activities you already need to accomplish is mutually beneficial as it helps you to accomplish your goal while providing purpose to the student in knowing that their assignment is truly important to you. This is a great way to save time, reduce “busy work”, and promote productivity for the preceptor and the student alike.

Tip #3: Prioritize inclusivity
When allowed, include your student in everything you do. Have the student attend meetings with you, participate in conference calls, and engage in group emails. Being inclusive shows the student a degree of trust that will make them feel valued. This level of inclusion also provides a “behind the scenes” look that may provide a new point of view compared to their usual perspective. Since these interactions will occur in a remote environment, be sure to schedule some time to debrief with your student after the meeting or conference call. Provide your student an opportunity to describe what surprised them and what new perspective they gained. Be sure to share your reflections as well (e.g., Was this a typical meeting? How do you think that meeting could have been improved?). It is important for your student to be exposed to the good, bad, and ugly to gain a complete sense of a career, especially if they espouse interest.

Tip #4: Expose the student to academic and non-direct patient care activities early
“What do you do when you aren’t teaching or with patients?” Many students will serve as preceptors with some even having a significant interest in academia as a profession in the future so exposing students to academic and non-direct patient care activities during the rotation is important. Without intentional discussion, students are unlikely to be oriented to the career path of academia or the many associated responsibilities that come with being a preceptor. Highlighting the myriad of the opportunities, obligations, and global construct including both promotion criteria and the academic triad (teaching, scholarship, and service) in addition to the other responsibilities outside of patient care activities should be core learning activities for the student. Describing time allocation to each of these areas is fundamental to the student’s understanding of the structure of the rotation and the preceptor’s entire job responsibilities. The unique mixture of high independence, lack of traditional structure, and requisite creativity make this a learning experience for which most students will require orientation.
Tip #5: Intentionally assign deliverables with the student in mind
Deliberate thought regarding assigned work products can foster student engagement and mutually beneficial deliverables. Cognizance of a student’s prior experiences will provide insight into previously developed skills and ones requiring enhancement. Further, understanding a student’s skill level will aid in determining appropriate deadlines. Perhaps most notably with both patient care interventions and professional writing, deadlines should be balanced between allowing the student ample time to produce a meaningful first attempt while also being conservative enough knowing that the preceptor will likely need to provide substantial feedback.

As preceptors and academicians have multiple projects in various phases on top of daily responsibilities, introducing students to the concept of “having multiple irons in the fire” is a key rotation skill. Ensure students understand the scope of each task, associated skills, and approximate time allocation at the outset, and follow this up with deliberate discussion of assignment progress and frequent reassessment of priorities.

Assignments can and should be synergistic with one another, similar to faculty specialty areas. Preceptors should be intentional in stacking deadlines in a way that benefits the student with smaller tasks leading to larger tasks in the same topic area. In this manner, the preceptor can assess knowledge gaps and provide meaningful feedback that translates intentionally in stacking deadlines in a way that benefits the student with smaller tasks leading to larger tasks in the same topic area. Further, for large assignments, help students learn basic project management skills akin to “Eat That Frog,” wherein the preceptor helps break down a big task into smaller bite size chunks while assigning the student to develop mini-deadlines for these smaller tasks (Tracy, 2017).

Tip #6: Actively engage students to invest and help design the experience
The lack of structure and need for creativity can be daunting when applied to assignments that may seem foreign, unimportant, or lacking purpose. Indeed, the expectation that students will work hard, in this new highly autonomous environment, to make meaningful contributions to assignments without being personally invested is likely unfounded. To increase investment, provide a selection of proposed assignments or professional obligations (e.g., committee meetings) to choose from and describe the importance of each and the associated expectations. Let them “choose their own adventure” by selecting which projects/meetings they see meaningful. Having students understand the importance of their contribution and appealing to their personal interests will provide motivation that their hard work will make an impact. You can further incentivize them with acknowledgements, opportunities to present their work, or authorship, where applicable. Further, seek the students input for what will make the experience most engaging.

Tip #7: Empower the student
A remote rotation is an ideal setting to develop a student’s independent project management skills, and this skillset should be emphasized by the preceptor. In particular, use aspects of the “flipped classroom model” (e.g., outside readings and deliverables) while simultaneously assigning the student the responsibility to develop timelines, calendars, and task lists (Wong et al., 2014). This creates a sense of collaboration and ownership. Increasing independence also reduces time burden on meetings between the preceptor and student which can lead to meeting fatigue. Further, specific discussion of customized communication patterns is warranted (e.g., text vs. e-mail, daily summaries vs. ad hoc meetings, window of communication during day). As discussed in Tip #6, allowing choices in assigned activities based on personal interests gets ‘buy-in’ from the student. Putting the student in charge of project management and scheduling can add to this buy-in.

Tip #8: Optimize electronic platforms for student engagement and shared project management
Because remote rotations inherently mean less face-time, optimizing technology to support a sense of engagement is essential. The emphasis here is thinking through the logistics of the rotation with an eye for both efficiency and connectivity. Though many permutations exist, an example set-up would include the use of a cloud-based sharing platform (e.g., Dropbox, Google Docs, Microsoft Teams) to house a shared calendar for the month, revisions and final drafts of all deliverables, and other logistics documents including the syllabus and an assignment list. Taking the time to create a list of deliverables with key directions, deadlines, and supporting materials can create added efficiency. Students can learn valuable skills in orchestrating an efficient meeting that are highly useful in any future career path. These can include using technology to garner meeting availability times, developing a meeting agenda, and sending calendar invitations with meeting links. Remote meeting software (e.g., Zoom) can also be leveraged to create additional learning opportunities (e.g., journal clubs, auditing classes, observing other faculty meetings).

Tip #9: Create an environment of collaboration (connect your students)
In line with not creating new work for yourself and to be professionally generous, ask fellow colleagues for any tasks that may offer a unique learning opportunity for the student that will add to their experience. This ability to help out a colleague with a project of theirs also allows you to connect the student with new individuals and opportunities that may or may not be in your clinical specialty while also offloading some effort from you. There is growing evidence that
| Tip | Examples |
|-----|----------|
| Mentor and model for your students. | • Assign deliverables such as updating a curriculum vitae, drafting letters of intent, developing teaching philosophies  
• Scheduled discussions related to student’s career aspirations and preceptor’s career path |
| Align assignments with current priorities. | • Student could perform literature search to guide a new research project or reformat a manuscript for submission to an alternative journal  
• Student could draft a new protocol or policy for your department |
| Prioritize inclusivity. | • Have the student attend meetings with you, participate in conference calls, engage in group emails |
| Expose the student to academic and non-direct patient care activities early. | • Schedule formal discussions with student related to the academic triad (teaching, scholarship, and service) and the promotion and tenure process  
• Discuss the other obligations of the preceptor outside of direct patient care (committee meetings, protocol/policy development, quality improvement projects, professional organization involvement) |
| Intentionally assign deliverables with the student in mind. | • Take an inventory of the student’s prior experiences and skills at the start of the rotation to gauge entry level abilities  
• Be intentional in stacking deadlines to benefit the student (develop a short slide presentation on a topic before drafting a review article on the same topic)  
• Break down a larger project into smaller tasks with mini-deadlines (instead of assigning the task of writing a manuscript, consider assigning sequential tasks of first writing the methods, then write the results) |
| Actively engage students to invest and help design the experience. | • Allow the student to select which meetings to attend from a list of all committee or professional organization meetings that occur during the rotation  
• Provide the student with several manuscripts or projects, each in different phases requiring different levels of attention, and describe the importance of the topics to the institution, profession, or patients and allow them to choose which they would like to complete |
| Empower the student. | • Assign the student the responsibility to develop their rotation calendar, timelines, and task lists  
• Help the student develop lifelong learning skills through independent topic research prior to discussion with the preceptor |
| Optimize electronic platforms for student engagement and shared project management. | • Implement the use of a cloud-based sharing platform to house shared documents like calendars, project documents and revisions, rotation syllabus  
• Help the student develop efficient meeting management skills like polling attendees for availability times, creating a meeting agenda, and sending calendar invitations with meeting links |
| Create an environment of collaboration (connect your students). | • Ask colleagues for any tasks or projects that lend themselves to a learning opportunity for the student  
• Connect your student with other collaborators to expand their exposure to others outside your specialty area |
| Be highly intentional with feedback. | • Schedule feedback sessions (formal and informal, written and verbal)  
• Ask your students to provide feedback on the rotation experience or your precepting to help the student practice giving feedback  
• If available, ask students to provide feedback to other trainees |
| Exercise professional generosity: give credit freely/liberally. | • Find a way to give the student credit for every assigned activity (a line item to add to the student’s curriculum vitae, an acknowledgement in a published manuscript or in a formal presentation, or verbal recognition at a meeting of peers, etc.) |
adequate sampling of various options is important within many fields before ultimately specializing, so helping to expose students to areas outside of your field of specialty is optimal (Epstein, 2019). Further, this type of task is an important learning opportunity for a student that mimics the professional world where often one is assigned a task in conjunction with another individual with whom they have never worked prior to that assignment (e.g., committee work in an organization).

**Tip #10: Be highly intentional with feedback**

In a remote environment, where much of the communication occurs via electronic means, providing feedback remains a core part of the learning experience, especially given a lack of “face-time.” Being highly intentional with feedback can help ensure that it is provided and can be achieved in several ways: (1) put it on the calendar: schedule feedback (e.g., “Feedback Fridays”) during which the student can self-reflect and the preceptor can provide formative and summative feedback, (2) provide formal feedback for each assignment, and (3) use various formats for feedback (e.g., written and verbal, formal and informal). Also, a rotation experience is an optimal time for your students to practice delivering feedback in addition to receiving it. The student can provide formal feedback for the rotation experience and should also engage in evaluating other trainees who may be from different levels or professions, if applicable. This can easily be achieved if you have multiple trainees on the rotation, but can also be achieved by using technology to connect students across different APPEs (e.g., student on academia rotation can evaluate case presentations of student on clinical rotation) and across different class ranks (e.g., student on academic rotation can evaluate seminar presentation of P3 student).

**Tip #11: Exercise professional generosity: give credit freely**

Recognition can have an important role in enhancing engagement and commitment and in helping your student recognize the value of their contributions. A good goal is to find a way to “give credit” for every activity assigned to your student so that they can easily see a direct and personal benefit from their work. “Credit” can be granted in several different ways: a line item to add to the student’s curriculum vitae, an acknowledgement in a published manuscript or in a formal presentation, or verbal recognition at a meeting of peers, to name a few. This professional generosity provides great value and sense of accomplishment to the student. In his book *Give and Take: Why Helping Others Drives Our Success*, Grant describes takers, matchers, and givers and explains that givers, who contribute to others without expecting anything in return, tend to achieve the most personal success in their professional careers (Grant, 2013). We recommend embracing this sense of professional generosity by ensuring that each activity assigned to a student benefits them directly.

**Tip #12: Encourage the student to develop a holistic perspective. Acknowledge the greater purpose**

Depending on the preceptor’s job responsibilities, scholarship may be a requirement and/or a metric for success. That does not mean it is simply a chore. There is a selection bias in academic positions to those that innately want to advance science, medicine, and the profession. In a non-academic environment, it is important to also strive to make advancements. Leave the profession better than you found it. This can be done in several capacities including maintaining a professional image, contributing to the advancement of the profession, and giving back. Model for the student how to be an agent of change. Serve as a mentor to a pharmacy student. Allow a pre-pharmacy student to shadow you. Make those impressions so profound that you inspire your student to continue the cycle of giving back (Newsome, 2020).

**Conclusion**

Remote APPEs, while not face-to-face, offer a rewarding opportunity for both the student and the preceptor. It is important to balance the productivity of the rotation and provision of a customized and personal experience. Sampling of most aspects of the preceptor’s work provides the student with broad, honest exposure within the profession, often a mystery to most students. Further focusing on common interests within current projects of both the student and the preceptor will allow for a mutually beneficial experience leading often to new information being gained by both parties and synergistic productivity. Thoughtful feedback and intentional generosity provided throughout the rotation will lead to a deep, meaningful experience for students regardless of the remote method.
Take Home Messages

- As a response to the COVID-19 pandemic, many healthcare institutions have incorporated remote work for patient care or other responsibilities, which has created a need for pharmacy faculty and preceptors to shift their experiential education rotations to a remote format.

- Remote education has the potential to create a mutually beneficial experience for both the student and preceptor.

- Students are able to have a more customized rotation experience, gain exposure into all aspects of the profession, and develop unique skills.

- Preceptors and faculty can find synergistic opportunities to involve students in patient care responsibilities and scholarly projects.

Notes On Contributors

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Declarations

The author has declared that there are no conflicts of interest.

Ethics Statement

This paper consists of only practical tips. It does not involve human participants, animals, tissue and /or data.

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Ken Masters
Sultan Qaboos University

This review has been migrated. The reviewer awarded 3 stars out of 5

The paper is an interesting Twelve Tips article dealing with the synergistic delivery of remote advanced pharmacy practice experience rotations. It is a useful paper giving practical tips – and the Table with practical examples is a nice summary. There are, however, a few issues that should be addressed.

• It would be useful if the authors could include a (perhaps abbreviated) listing of the tips in the Abstract. This is useful because many readers read the Abstract, and then decide whether the paper is worth reading or not. Listing the tips in the abstract will give them a clear indication of the content and value of the paper.

• I can see why some people may find Tip 2 a little controversial. Readers need to realise that the tip’s value lies in recognising the fact that busy faculty are trying to cover so much, that not everything can be done properly and that, given that there is such a wide range of activities, assigning those that are mutually beneficial, will have a positive outcome. It is well-balanced by Tip 5. Perhaps, though, a line could be added to Tip 2, that the faculty should simultaneously guard against simple expediency and abuse of their powerful position, relative to the students’.

• The paper is a little thin on drawing from the literature, and it would be useful if some of the material could be supported from the literature. (Simultaneously, however, I realise that the novel situation means that specific literature may be scarce).

• There are a few other issues raised by the other reviewers, so I will not deal with them also. So, overall, a useful paper, but one in which some extra work would make more valuable. I look forward to version 2 in which the issues are addressed.

Competing Interests: No conflicts of interest were disclosed.

Reviewer Report 01 December 2020

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Mojdeh Heavner

This review has been migrated. The reviewer awarded 5 stars out of 5

Thank you for the opportunity to comment on this article. Overall, the authors have provided a comprehensive, thoughtful guidance on how to improve the remote delivery of advanced practice experience rotations. I enjoyed reading this article and will plan to share it with my colleagues as a good example for how to create a more engaging experience for students on remote rotations. We are encountering unchartered territory with the pandemic and the move to more remote activities than we have done in the past. Schools have shifted teaching and learning strategies to adapt to this new environment, but with little data or past experience to use as examples. In reading this article and the 12 tips, I have learned some new strategies and recognized somethings that perhaps I was already doing but did not realize were happening intentionally. It is of the utmost importance to share our experiences in these times, and I applaud the authors for taking on this task. I have listed a few more detailed observations and comments below:-I believe that all of these tips can be applied to onsite, in-person rotations as well. It is a silver lining of the pandemic, that we have been forced to think about our world a little differently.-Tip #2: It appears this tip is more controversial than the authors intended. I agree 100% with the intent and how it is delivered as well. I think of my learners as an extension of me. Therefore, what tasks can they take on that "help" me conduct my job? I don't find anything wrong with this approach, given that the goal is to train learners to become us one day. It is key, however, to give students opportunities that will also be of benefit to them. In this regard, I think it is important to connect Tip #2 with Tip #5 and Tip #6. In engaging my students in my "to do" list, I often assign the patient care tasks (e.g., write the vancomycin kinetics note, write the anticoagulation monitoring note, communicate with the team via the hospital messaging system what changes need to be made to pharmacotherapy). However, with the activities and opportunities not directly impacting patient care, I will often provide the student with a choice (i.e., help review this paper OR data collect for this project).-Tip #3: This is an excellent point that I think we frequently forget about. It is probably not necessary to include students in all conference calls, but even involving them in some of these meetings will help them gain a greater sense of "what it is their preceptor does all day." I have been hesitant to include students in my meetings but will consider this now seeing that others are doing more of it. -I also love Tip #9. This is an example of something many of us are doing but don't realize that we are. It is helpful to be aware of it and connect students and express that the intent is for them to expand their professional network and collaboration opportunities. The authors, all faculty at University of Georgia, have an excellent track record of conducting research with heavy student involvement, so it makes sense to have this recommendation come from the UGA group. -Is Tip #10 is not unique to the online environment but I can see how the authors expanded on the importance of intentional feedback in the remote setting, by adding opportunities to have students evaluate one another and even adding a layered learning model. -I suggest the authors add a few statements about how all of these tips can be applied in a more traditional
rotation experience as well, and that being even more compelled to ensure engagement in the remote setting has prompted us to reevaluate our experiential teaching strategies.

**Competing Interests:** No conflicts of interest were disclosed.

**Reviewer Report 20 November 2020**

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**Amjad Qandil**

This review has been migrated. The reviewer awarded 3 stars out of 5

I have enjoyed reading is article “Twelve Tips for Synergistic Delivery of Remote Advanced Pharmacy Practice Experience Rotations”. The reviewers have the following comments: 1. Most of the tips (Tips #1, 3-6, 11-12) provided in this manuscript will enrich APPE and other health professions rotations regardless of the environment, and/or how the online environment can facilitate the application of these tips in a way that was not possible/less effective in the traditional onsite setting. For example, Tip #3 is also applicable for onsite rotation. It is useful to provide a narrative on how these reflection sessions can be conducted online and how, if any, the online format can add value or facilitate this practice. It can be argued that this tip is extremely facilitated by the online format. Where students could have been considered a burden when attending all face-to-face meetings in which their preceptors are involved, the online format reductor barriers of physical room crowdedness or availability of suitably sized conference rooms. 2. Tip #2 Seems to be a “questionable” one. Does the authors suggest that the preceptors own priorities are more important than the objectives of the rotations? There is apparent contradiction with tip #5. It can be argued that this tip needs better articulation. 3. Tip #7. Although the Flipped classroom teaching methodology has gained more recognition and traction with the transition to online remote education due to COVID-19, it has been used in face-to-face learning. It should be argued that it should be a main stay in all rotations regardless of the format. 4. For Tips #8 and 9, it will be useful to mention that the experience gained form these two tip can enrich onsite rotations also. 5. There was no clear mention if the authors are having hybrid format rotation in mind, post COVID-19 may be. May be adding this possibility to the mix will improve the utility of the manuscript. 6. Finally, it might be useful that preceptors should coordinate to safeguard against redundancy of over-including some of these tips in their rotations. For example, Tip #1, in how many rotations should a student be asked to update their CVs or draft letters of intent. Wish the authors the best of luck.
**Competing Interests:** No conflicts of interest were disclosed.