

RESEARCH ARTICLE

Student perspectives on peer education using a virtual platform to enhance advanced pharmacy practice experiences (APPE)

Mazal Davydova¹, Liza Mae Divinagracia², Kimberly E. Ng³, Nicole Bradley³

¹ Walgreens, Mineola, New York, United States

² Jersey City Medical Center, New Jersey, United States

³ Department of Pharmacy Practice, St. John's University College of Pharmacy and Health Sciences, Queens, New York, United States

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Correspondence

Kimberly E. Ng
Department of Pharmacy Practice
St. John's University College of Pharmacy
and Health Sciences
Queens
New York
United States
ngk3@stjohns.edu

Abstract

Background: The COVID-19 pandemic caused dramatic disruptions in the education of pharmacy students who graduated in 2022. As an additional active learning opportunity at a New York City hospital site with multiple preceptors and faculty, a monthly student-led virtual educational conference was implemented. The objective of this study was to assess student perspectives on the implementation of a virtual peer education conference. **Methods:** Between May 2021 and May 2022, a total of twenty-eight students participated as presenters or attendees. All students completed a 13-item survey to evaluate the impact their participation in the virtual conference had on their overall learning and how similar opportunities could impact their future learning experiences. **Results:** When asked to rate on a scale from 1 (did NOT improve at all) to 5 (greatly improved my learning), 93% (26/28) of students rated their change in learning after attending the student-led conference as a four or five. Students identified that participation enhanced their drug/disease state knowledge, improved their presentation skills and/or improved their critical thinking and clinical application skills. **Conclusion:** In the future, advanced pharmacy practice experiences (APPE) can consider the inclusion of peer education through an online platform as a strategy to facilitate learning in pharmacy programmes.

Introduction

In March 2020, a New York City (NYC) COVID-19 lockdown caused educational institutions to transition to fully remote instruction, causing dramatic disruptions in the education of pharmacy students expecting to graduate in 2022. A study from the end of 2021 assessed the impact the COVID-19 pandemic had on graduating pharmacy students in NYC and reported high levels of personal and school related stress leading to lack of motivation and hindered learning ability. In a reflection paper as a part of the study, students conveyed that while being frontline workers, they felt isolated from their friends and their learning, and with time, found it harder to freely communicate with others. Financial strain and loss were identified as

additional burdens for many students during this time, creating an overall tone of tragedy and despair, all while in their most demanding year of professional studies (Elbeshbeshy, Gim & Quattrocchi, 2021). At the University of Alberta, located in Canada, a population of 53 pharmacy students in various years of the programme were asked to reflect on how the COVID-19 pandemic affected their pharmacy education. Results showed that remote delivery of coursework negatively impacted pharmacy student learning. Students expressed that this shift to remote learning was "*detrimental to their education*" as it was difficult to follow and retain material from home. There was no "*bouncing back and forth*" of ideas between classmates (Nagy *et al.*, 2021). The negative feedback in response to remote coursework delivery was also attributed to

the rapid adjustment instructors were forced to make, some with little to no training on the software they were suddenly required to use (Gillis & Krull, 2020).

Considering the lack of face-to-face education that the pharmacy students of the class of 2022 received, additional learning opportunities have been trialled to compensate for the hindered learning these students experienced. A study that assessed the impact of peer teaching on student scores and confidence on a clinical examination within a pharmacy programme proved that peer-guided learning positively impacts students in their professional education. First-year pharmacy students who attended a peer-led clinical skills training session led by upperclassmen completed a post-training survey to re-assess their confidence in their clinical skills. Students felt more comfortable discussing and collaborating with peers as opposed to faculty. Furthermore, students who attended the session scored higher on their Objective Structured Clinical Examination (OSCE) than those who did not receive training from their peers (Cole *et al.*, 2018). Another study found that peers are better able to relate to student challenges and that peer education provides an opportunity for students in the healthcare field to get training and knowledge at a more comfortable level (Lawson *et al.*, 2019).

As an additional active learning opportunity at the hospital site in NYC, a monthly student-led education conference was implemented among a cohort of pharmacy students on the Advanced Pharmacy Practice Experience (APPE) rotation. A core aspect of this conference was that it focused on peer learning since the presenters, being the students, were delivering educational presentations to their peers. Student presenters were given their assignment during the first week of their rotation and had three weeks to identify a topic and develop their presentation. Pharmacy faculty or preceptors reviewed and approved topics for presentation and provided detailed feedback prior to the presentation at the conference. Student presentations included elements such as interactive Kahoot games for North American Pharmacist Licensure Examination (NAPLEX) practice questions, patient case discussion and analysis, topic discussions about expanding disease state knowledge and presentations on new drug approvals. The virtual platform on which this student-led conference was conducted allowed students to deliver content in a didactic style but also allowed them to have ample interaction with their peers and exchange ideas to help facilitate their learning. The utility of small-group online learning was examined at Harvard Medical School in the spring of 2020, where students were divided into “virtual homerooms” to supplement their radiology clerkship. Students responded that small group virtual

learning environments were conducive to their clinical training as future healthcare professionals. Despite being virtual, students conveyed they were able to form interpersonal connections with peers with the added convenience of being able to social distance and avoid commuting time and expenses (Goldenson *et al.*, 2022). Since virtual learning helps overcome the barriers of social distancing, the virtual setting was chosen to implement the student-led educational conferences at the institution. The purpose of this study was to assess student perspectives on the implementation of a virtual peer education conference. While peer-assisted learning is a useful tool in professional education, proven to benefit cognitive development, psychomotor development and self-confidence, its role has not been extensively studied in pharmacy education (Lawson *et al.*, 2019).

Methods

Pharmacy students on an APPE rotation at an NYC medical centre between May 2021 and May 2022 participated in a student-led educational conference as described above. Each APPE rotation was a total of four weeks long, and the student-led educational conference was held during the last week of the rotation after having completed activities such as journal club presentations, case presentations, and topic discussions throughout their rotation. Conferences were held on an online platform for each rotation period in order to comply with social distancing precautions and to be easily accessible to all students participating in the student-led conference. Students developed 30-minute presentations with preceptor feedback for the educational conference. Attendees included all pharmacy students at that rotation site, preceptors, and pharmacy staff. Immediately following the presentation, all students, both presenters and attendees, received a link to complete a 13-item survey to evaluate the impact peer education had on their overall learning and how similar opportunities could impact their future learning experiences.

The 13-item survey asked the following:

1. When did you complete your rotation?
2. When is your expected year of graduation?
3. Did you participate in peer education on a different APPE rotation BEFORE this rotation.
4. What disease states/topics did your peers present on?
5. How did participating in peer education help to improve your learning? Select from the following: enhanced my drug/disease state knowledge, improved

my own presentation skills, and/or improved my critical thinking and clinical application skills.

Student responses to the following statements were measured using a Likert scale with responses ranging between strongly disagree, disagree, neutral, agree or strongly agree:

- 6. Peer education should be offered during all APPE rotations when possible.
- 7. I think peer education is a good way to increase my learning during APPE rotations.
- 8. I am confident in providing education and facilitating discussion among pharmacists, pharmacy residents, preceptors, etc. at my APPE site.
- 9. I feel confident in peer education as the presenter/facilitator.
- 10. I feel confident in peer education as an audience member.
- 11. I am willing to provide peer education and facilitate discussion with my peers.
- 12. Participating in peer education at my rotation helped to improve my learning.

Lastly, students were asked:

- 13. How did this conference change your learning after attending the conference from a scale of 1 (did NOT improve at all) to 5 (greatly improved my learning)?

At the end of the survey, students were also given an opportunity to voice any additional comments or feedback about their experience at the end of the survey. Survey responses were analysed using descriptive statistics to assess student perspectives on the impact participation in the conference had on learning. Categorical data and Likert scale responses were reported as percentages. This study received IRB exemption from the institution, and student participation in the survey was voluntary and anonymous. No personal student information was collected. Informed consent was detailed upon entry into the electronic survey.

Results

A total of 28 students participated in the student-led conference between May 2021 and May 2022, with 15 students as presenters and 13 as attendees. Each month, students discussed topics such as infectious diseases, cardiology, psychiatry, health literacy, and endocrinology. All 28 students who participated completed a survey. As depicted in Figure 1, only 29% of students participated in peer education on a different APPE rotation. Responses displayed in Figure 2 demonstrate that 86% (24/28) of students reported that their drug/disease state knowledge was enhanced, 79% (22/28) improved their own presentation skills, and 54% (15/28) improved their critical thinking and clinical application skills.

and 54% (15/28) improved their critical thinking and clinical application skills as a direct impact of the student-led conference. Figure 3 displays student responses to questions asked on a Likert scale of strongly disagree, disagree, neutral, agree or strongly agree. 86% (24/28) of students agreed or strongly agreed that peer education should be offered during all APPE rotations when possible. 96% of the participants (27/28) thought that peer education is a good way to increase learning during APPE rotations. 79% of the participants (22/28) felt confident in peer education and facilitating discussions with healthcare professionals at the APPE site. 68% of the participants (19/28) felt confident in peer education as the presenter or facilitator, and 93% (26/28) felt confident in peer education as an audience member. 86% of the participants (24/28) were willing to provide peer education and facilitate discussion with their peers. 96% (27/28) found that participating in peer education did improve their learning. Overall, 93% (26/28) of students rated their change in learning after attending the student led conference as a 4 or 5 from a scale of 1 (did NOT improve at all) to 5 (greatly improved my learning).

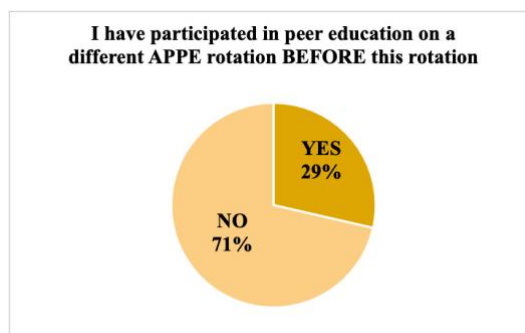


Figure 1: Students identified if they have had peer education opportunities in their prior APPE sites

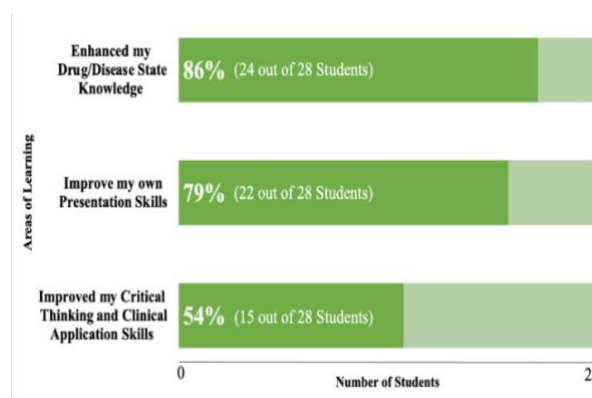


Figure 2: Students identified how peer education supplemented their learning

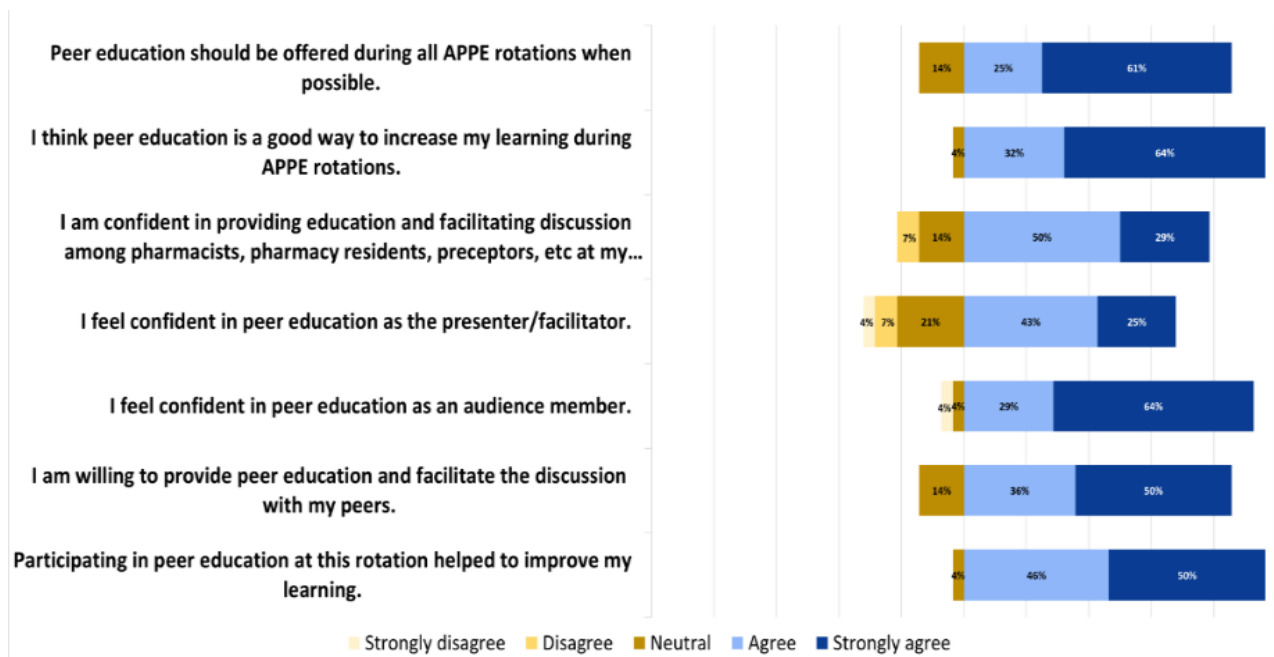


Figure 3: Student responses after presenting or attending the student-led conference

Discussion

The implementation of peer education as an additional active learning component for the class of 2022, a class of pharmacy students whose education was hindered by the height of the COVID-19 pandemic, enriched the pharmacy practice experience. These virtual educational student-led conferences allowed students to not only hone their clinical knowledge but also build the interpersonal skills that are essential to the role of a pharmacist. The findings of the study are similar to those of prior studies on peer education in pharmacy programmes (Cole *et al.*, 2018, Lawson *et al.*, 2019) and provide additional insight into the benefits of virtual peer education. Furthermore, the Accreditation Council for Pharmacy Education (ACPE) requires Doctor of Pharmacy programmes to include teaching methods that engage and push for collaborative learning (Accreditation Council for Pharmacy Education, 2015). Implementation of a virtual peer education programme achieves this ACPE requirement.

Prior studies have highlighted concerns associated with online delivery platforms as effective tools in education. For example, a study done in 2022 voiced concern about the “*underdeveloped communication skills associated with online delivery platforms*” (Morling *et al.*, 2022). Another found that due to the pandemic, students were initially intimidated by a virtual environment in which they struggled due to a lack of motivation and uncertainty about how to be an effective student online (Morling *et al.*, 2022).

Furthermore, a study that assessed students and faculty at two different Doctor of Pharmacy programmes during the early stages of the COVID-19 pandemic identified a shared sentiment of “*imposter syndrome*” among student pharmacists at the institutions surveyed. Imposter syndrome, in their case, aligned with feelings of intellectual fraudulence as students felt they were not being held to the same standards as previous graduating classes especially since ACPE made experiential requirements for graduation more lenient for students in school during COVID-19. In association with this imposter phenomenon, students had a lack of professional identity and a lack of confidence in their abilities as future health care practitioners (Boyle *et al.*, 2022).

To address the difficulties students faced, including the rushed transition to a remote platform, lack of interpersonal connections, and negative sentiments of “*imposter syndrome*,” the student-led conference was modelled to allow students to ease back into their interaction with peers, preceptors and other health care professionals. Students, both presenters and attendees, learned from each other through the interactive presentations that allowed for ample discussion and exchange of ideas and built confidence. Survey responses revealed that students learned from each other by engaging in a non-conventional component of an APPE experience. The responses support the implementation of such conferences through virtual platforms that would allow for a larger audience and increased participation to bridge the gaps

in knowledge that occurred because of the sudden transition to remote learning during the pandemic.

The survey results also convey that students participating in the conference were able to leave with an increased sense of confidence. While confidence is an emotional component, it is a component that plays a big role in the success of any aspiring clinician. A study from September 2022 that evaluated the confidence of students in their 3rd professional year prior to the start of APPEs revealed that the class of 2022 reported the “not confident” response five times more than the class of 2021 (Mirzaian *et al.*, 2022). Once again, it is the class of 2022, a pharmacy class that lacked in-person instruction due to the changes their curriculum endured as a result of the COVID-19 pandemic, that stands out among other graduating classes. It is imperative that aside from clinical knowledge and critical thinking skills, the confidence and interpersonal skills needed to interact with other members of the health care team are honed during APPE rotations. In 2021, a study exploring APPE readiness by evaluating the perspectives of APPE students, faculty and faculty site directors underscored that APPE readiness was dependent on relationship-building and workplace practices that orient and support students. Both students and preceptors value relationships which may aid in increasing confidence prior to the start of APPEs and during (Gruenberg *et al.*, 2021). Positive relationships foster the comfortable environment students need in order to be able to express any hardships and identify roadblocks in their learning. This study helps identify that clinical knowledge, while important, must be built alongside other factors that contribute to APPE readiness (Gruenberg *et al.*, 2021). Through the virtually led educational conference, students were able to have meaningful interactions with their peers, faculty, and other preceptors at the hospital, allowing them to get to know the professionals at their APPE site and make it a comfortable learning environment going forward. As such, these conferences can be a useful tool for preceptors to shape their rotations to optimise pharmacy student learning.

Overall, this study demonstrates students’ positive experience with peer education and provides valuable insight into the importance of the learning environment that students require in order to better understand and retain the material. In a peer-assisted learning study from 2018, a low-stress learning environment was established between first-year and upperclassmen pharmacy students. The study results concluded that a student’s professional development requires a productive yet comfortable surrounding that may not be offered if only left to the confines of a class (Morling *et al.*, 2022). The study tried to emulate this

type of environment by using live video so that peers could see one another, allowing for the comfortability that provides comprehensive back-and-forth conversations.

Limitations of this study include a small sample size, a short study time frame and limited generalisability. This study was conducted over a time frame of one year in which only a small group of students participated in the conference and responded to the survey. The study was also limited to the class of 2022, which may impact the generalisability of the benefit of peer learning on APPE to groups of students who have experienced disruptions in learning. Additionally, no baseline survey was done to serve as a comparator that would reveal student perspectives and sentiments prior to engaging in the student-led peer educational conference. The inclusion of a control group consisting of pharmacy students from another graduating class would help further evaluate the benefit of peer education in the APPE curriculum.

Despite these limitations, the study highlights peer education through a virtual platform as a way to enhance student well-being and assurance. Ultimately, this study can be treated as a model for future studies that will examine the effects of peer education through a virtual platform with a larger sample size of pharmacy students. Further research done across multiple institutions and including students from different graduating classes can help underscore the findings of this study and support the inclusion of this type of learning component within APPEs.

Conclusion

Data from the student survey evaluations supports that the use of virtual peer education is beneficial for pharmacy student learning during APPE rotations. Student involvement in peer education after having experienced a lack of in-person learning was shown to improve student confidence as presenters and communicators and enhance disease state knowledge and critical thinking skills, all key to the profession of pharmacy. The inclusion of virtual peer education is a feasible way for APPE sites to incorporate more collaborative learning for student pharmacists. In the future, APPE rotations can consider the inclusion of peer education opportunities to foster these benefits.

Conflict of Interest

The authors declare no conflict of interest.

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