Listener, member, and advisor perspectives regarding a pharmacy podcast student organisation

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Abstract

Background: This work describes the structure and function of a pharmacy student-led Podcast Student Organisation (PSO) through the perspectives of the organisation's members, listeners, and advisors. It aims to provide a blueprint for other colleges of pharmacy to replicate and develop their own programmes and share the experiences of those involved with the PSO. **Methods:** Perspectives from the advisors were gathered via statements. The listener and member perspectives were collected via a survey. Data were collected to share the listener and PSO member experience regarding the PSO. **Results:** Based on the post-surveys meeting inclusion criteria (n = 32), most listeners showed statistically significant improvement in attitudes towards the topic of the episode ($p = 0.027$) and their college of pharmacy ($p = 0.017$). The podcast team showed statistical improvement in attitudes towards their college of pharmacy ($p = 0.020$) and their Doctor of Pharmacy curriculum ($p = 0.046$). Satisfaction responses were overwhelmingly positive after listening to the episodes. **Conclusion:** The PSO may help improve attitudes towards some topics and promote positive feelings regarding students' college. This description of the PSO and lessons learned may serve as a blueprint for colleges of pharmacy considering implementation and encourage others to adopt a PSO.

Introduction

As podcasts increase in popularity, their use as an educational tool has been explored more thoroughly in pharmacy education. When mentioning podcasts in this text, the authors are referring to recorded, asynchronous audio files that function as editions of a themed programme with at least some emphasis on entertainment. These are not to be confused with recorded lectures, live radio shows, webinars, vlogs, or social media posts. Podcasts are effective in delivering information (Baecker, 2022). They are also a valuable means of providing educational content or feedback to pharmacy students in didactic and skills-based learning environments (Kratochwill *et al.,* 2016; Flood *et al.,* 2017; Kane *et al.,* 2019; Baecker, 2022). Other advantages of podcasts include listener accessibility, low barriers to entry, and the generation of advertising revenue (Cain & Fox, 2009). Disadvantages include periodic technological issues, no direct interaction with

the listener, and loss of interest with longer episodes (Khechine *et al.,* 2013). Nearly all examples of pharmacy education podcasts in the literature have served to deliver content from an instructor for a course or from students as a deliverable for a course (Lancaster *et al.,* 2011; Khechine *et al.,* 2013; Stewart *et al.,* 2013; Miesner *et al.,* 2017; Flood *et al.,* 2017; Poirier *et al.,* 2017; De Gagne *et al.,* 2019; Newsom *et al.,* 2019; Ro & Villarreal, 2019; Maher *et al.,* 2020; Matulewiczz *et al.,* 2020; Zumach & Portillo, 2020; Baecker, 2022; Joshi & Klausner, 2022; Wang *et al.,* 2023). Currently, only one pharmacy podcast functions as a student organisation registered with a university, and this organisation has not previously been described in the literature.

After identifying a lack of educational podcast content for pharmacy students in 2019, one student led the creation of a novel pharmacy education podcast student organisation (PSO). This PSO provided an educational platform that served as a supplemental

study tool to build on pharmacy students' didactic knowledge. There are now two student-led pharmacy podcasts sponsored by a college of pharmacy, both of which were founded in 2019: one from the University of Houston College of Pharmacy and the other from the University of Georgia College of Pharmacy (Morkeh et al., 2019; Rahimi, 2019). The podcast associated with the University of Georgia College of Pharmacy is not registered as a student organisation with the university, making the podcast at the University of Houston the only pharmacy student-led podcast student organisation at a United States college of pharmacy (University of Georgia, n.d.). While there are examples of podcasts that function as student organisations in other disciplines, such as journalism, the PSO in this text is the only one in the pharmacy discipline (Kratsas, 2023). A framework for a pharmacy student-led podcast for providing supplemental knowledge to pharmacy students has not been previously described in the literature. This text aims to describe the details behind the creation of a novel, student-led PSO as well as the observations and lessons learned after four years of operation so that other colleges of pharmacy may implement a similar podcast student organisation.

This text contributes to the current literature by providing a blueprint for implementing a pharmacy podcast student organisation (PSO). Current literature addresses the use of podcasts to deliver didactic content or for student use for projects, but not to deliver student-created information that is not part of a course assignment and intended for other students.

Methods

The PSO operates as an extracurricular entity at a US college of pharmacy and is registered with the university. Students are not required to participate in the operation of the PSO and are not responsible for the content of the podcasts as part of the Doctor of Pharmacy curriculum. Over its five-year history, the PSO has yielded lessons learned, compiled through collaboration between student organisation advisors and the college's Dean of Student Services. Further details regarding the PSO are discussed below.

Organisation and episode framework

Officers are divided into writing and production teams, each led by a manager. The writing team is responsible for script writing and editing. The production team is responsible for recording, hosting, and post-production editing. Figure 1 illustrates the hierarchical structure of the PSO. The podcast team involves about 17 members each year, selected by the president-elect after an application and interview process. The two faculty advisors are chosen by the student founder of the PSO based on a shared interest in the student's vision.
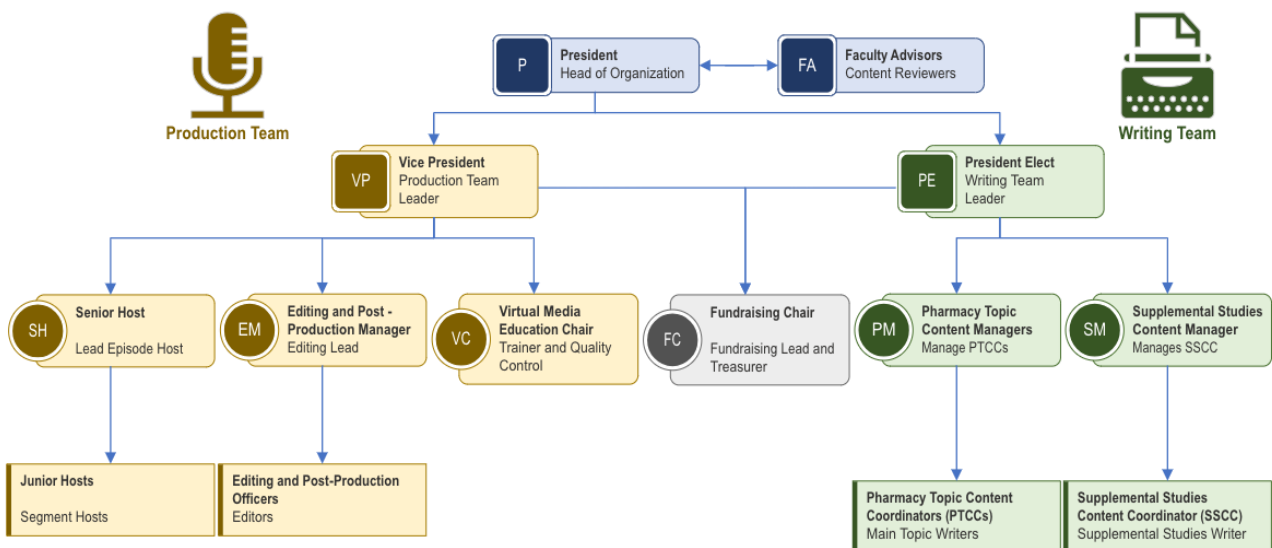

Figure 1: Organisational structure of the podcast student organisation

When developing episodes, each student in the PSO can suggest topics for consideration. Topics that earn the most interest from the writing team are selected.

The production team provides an outline of the episode via email to the advisors for approval and subsequently crafts the script based on their feedback. Each advisor's

review time for the script and outline is seven days, and the writing team's turnaround time for incorporating feedback is 4–10 days, depending on other scheduling conflicts. An initial and second round of script reviews is completed between the advisors and the writing team via email. After modifying the final script based on the second round of advisors' feedback, the episodes are ready to be recorded. The entire process, from outline preparation to recording and editing for each episode, takes approximately one month. Episodes are developed the term before their release, and one episode is released each month during the fall and spring terms.

The average episode length is 45 minutes, compared with 60–90 minutes before 2022, as the PSO was concerned about listeners losing interest towards the end of a lengthy episode. Each episode begins with a pharmacy-related topic that is either not part of the pharmacy school curriculum or not taught in depth (e.g. cannabidiol products or 3D printable medications). The next segment is a career path interview to help pharmacy students become more familiar with different careers within pharmacy. Pharmacists from all over the country are interviewed and provide perspectives on unique backgrounds and practice areas such as consulting and informatics. Each episode ended with a drug card segment during which a few of the top 200 drugs were discussed. This top 200 portion was changed in 2022 to focus on newly approved drugs rather than the top 200 drugs, but had the same format

otherwise. The topic and interview segments vary in relative length depending on the episode. The drug cards segment consistently occupies the final 5 minutes or so of the episode. The finalised recorded episodes are uploaded to the podcast hosting platform Libsyn, which distributes the podcast to Apple Podcast, Spotify, and other podcast-listening platforms. As of January 2024, 28 episodes have been released, with an all-time listener count of 7,058.

Comparison with other student organisations

At the authors' institution, the PSO operates under the same rules and guidance as other student organisations, but with several practical differences. For example, the PSO lacks a national membership, has no bylaw-instituted service-learning, and collects membership dues from officers only. This structure allows the PSO greater flexibility to design their operation based on specific needs, free from the constraints often imposed by the traditional constructs of national organisations with defined policies and procedures. The collected membership dues are used to fund resources such as the Libsyn subscription, microphones and other equipment, the Zoom® account, and startup costs for fundraisers. Also, this PSO has two unique features, i.e. the horizontal hierarchy and the use of small team meetings instead of membership meetings. Table I provides a comparison of the benefits and shortcomings of these key differences specific to the podcast organisation.

Table I: Advantages and disadvantages of the PSO's organisational characteristics

Characteristics	Advantages	Disadvantages
No national membership	• No membership quotas • No organisation fees • Creative and structural freedom	• Lack of organisational blueprint • Lack of shared resources • Lack of opportunities for national recognition
No service-learning requirements	• Less time commitment	• No community-based professional development opportunities • No direct impact on the non-pharmacy student community
Horizontal hierarchy structure	• Many officer positions to improve curriculum vitae • Niche roles and responsibilities	• Difficulty by advisors to find the appropriate student to communicate with • Specific roles are difficult to describe for replication
No membership meetings	• Less time commitment • No physical space or oversight concerns	• Difficulty addressing and engaging the membership face-to-face • Fewer contact points for advisors to build rapport with members • Fewer opportunities for student relationship-building within the organisation; could lead to disengagement over time

PSO = Podcast student organisation

The unique nature of the PSO is appealing to some students for various reasons, as revealed by an informal

continuous quality improvement survey. The themes emerging from student responses included PSO

uniqueness, previous interest in podcasts, and the opportunity to develop speaking skills. When asked about their motivation for taking leadership positions in the PSO rather than other student organisations, officers cited reasons such as the creative outlet it provides, alignment with their skills, and positive experiences from previous years.

The COVID-19 pandemic challenged many student organisations, disrupting meetings, fraternity pledge events, and service-learning opportunities while leading to a decline in student engagement. Unlike traditional student organisations, the PSO was minimally affected by the pandemic restrictions. Teams collaborated and interviewed guests virtually via video conferencing software. Also, fundraising issues that other student organisations were experiencing were not as detrimental to the PSO since it does not rely on fundraising for operations as heavily as traditional student organisations.

Listener, member, and advisor perspectives

The PSO president, in collaboration with PSO advisors, developed a quality improvement survey for listeners. A convenience sample of listeners, including podcast team members, was enrolled in an observational study via social media, email, and flyers. Participants were offered a chance to enter a draw to win a $100 gift card. The inclusion criteria were a university email address and current enrollment in the College of Pharmacy where the podcast is produced, determined by a survey question. The exclusion criteria were the inability to listen to the podcast or complete online surveys.

The study design involved a presurvey, podcast listening, a post-survey, and a follow-up retention survey three months later (not included in this analysis). Listeners had a deadline for completing the presurvey, which was linked to the episode on the completion page to prevent skipping the presurvey. The end of the episode contained a code needed to answer the post-survey to encourage completion of the episode. Three episodes of the podcast (episodes 13–15) were available during the study period. The main topics for episodes 13–15 were postgraduate training options, working conditions at chain community pharmacies, and 3D-printed drugs, respectively. Listeners who answered pre- and post-surveys for one of the three episodes were included in the analysis.

The surveys included demographic questions, attitude assessments (pre and post), and satisfaction questions (post-survey only). Attitude and satisfaction questions were rated on Likert scale ranging from 1 (the most "*negative*" response, e.g. strongly disagree, strongly disconnected, or very negative) to 5 (the most positive response, e.g. strongly agree, strongly connected, or

very positive). Knowledge questions were included but analysed separately for another project. Figure 2 presents attitude and satisfaction questions. Surveys were administered using Qualtrics XM. Podcast team members were identified through demographic questions and directed to three attitude questions specific to their podcast work.

Regarding attitudes, the term "*general podcast frequency*" refers to non-healthcare-themed podcast listening frequency, while "*healthcare podcast frequency*" pertains to healthcare-themed podcast listening frequency. Also, the authors acknowledge the inappropriate use of the word "*gender*" in demographic questions in this context but chose to retain it to reflect the original survey wording. Advisor feedback was solicited cross-sectionally in 2022 via unstructured, open-ended questions about general observations and was paraphrased in the results section by advisors (AZ and JW).

A Wilcoxon signed rank test was applied to attitude data, and a Pearson chi-square test was used on demographic data using IBM SPSS version 28.0.1.0. Descriptive statistics for satisfaction were performed using Microsoft® Excel version 16.70.

Results

A total of 36 post-surveys were completed, with 32 surveys (n = 32) included in the final analysis after excluding four due to incomplete attitude or satisfaction responses. This sample comprised nine surveys completed by PSO members. While some of the respondents may have completed surveys for more than one episode, all 32 responses were verified as unique using email address identifiers before deidentification.

Table II presents aggregate demographic information and a comparison between podcast team members and non-podcast team members. Statistically significant differences between the two groups were observed in gender, age, general podcast listening frequency, and healthcare podcast listening frequency.

Table III reports the mean changes in respondents' attitudes. The mean change was found by subtracting the presurvey numerical Likert score from the post-survey score, calculated by using the following formula:

$$\bar{x}_{postsurvey} - \bar{x}_{presurvey}$$

Figure 2 includes a percentage bar graph of the satisfaction responses from all 32 listeners in the sample.

Table II: Respondent demographics

Characteristic	Frequency n (%)			
	Non-PSO members n=23	PSO members n=9	Overall n=32	*p*-value
Gender				p < 0.001[a]
Female	20 (87.0)	1 (11.1)	21 (65.6)	
Male	3 (13.0)	8 (88.9)	11 (34.4)	
Age				*p* = 0.029[a]
20-24 years old	14 (60.9)	1 (11.1)	15 (46.9)	
25-29 years old	4 (17.4)	5 (55.6)	9 (28.1)	
≥30 years old	5 (21.7)	3 (33.3)	8 (25.0)	
Native English speaker				*p* = 0.083
No	10 (43.5)	1 (11.1)	11 (34.4)	
Yes	13 (56.5)	8 (88.9)	21 (65.6)	
Healthcare work history				*p* = 0.186
No	3 (13.0)	3 (33.3)	6 (18.8)	
Yes	20 (87.0)	6 (66.7)	26 (81.3)	
Highest level of education				*p* = 0.087
Some college	2 (8.7)	4 (44.4)	6 (18.8)	
Associate's degree	4 (17.4)	0 (0.0)	4 (12.5)	
Bachelor's degree	16 (69.6)	5 (55.6)	21 (65.6)	
Master's degree	1 (4.3)	0 (0.0)	1 (3.1)	
Academic year				*p* = 0.055
P1	4 (17.4)	0 (0.0)	4 (12.5)	
P2	14 (60.9)	3 (33.3)	17 (53.1)	
P3	4 (17.4)	3 (33.3)	7 (21.9)	
P4	1 (4.3)	3 (33.3)	4 (12.5)	
General podcast frequency				*p* = 0.010[a]
< 1 per week	6 (26.1)	1 (11.1)	7 (21.9)	
1-3 per week	7 (30.4)	5 (55.6)	12 (37.5)	
4-5 per week	1 (4.3)	0 (0.0)	1 (3.1)	
≥6 per week	0 (0.0)	3 (33.3)	3 (9.4)	
I do not listen to podcasts	9 (39.1)	0 (0.0)	9 (28.1)	
Healthcare podcast frequency				*p* = 0.008[a]
< 1 per week	10 (43.5)	4 (44.4)	14 (43.8)	
1-3 per week	3 (13.0)	2 (22.2)	5 (15.6)	
4-5 per week	0 (0.0)	0 (0.0)	0 (0.0)	
≥6 per week	0 (0.0)	3 (33.3)	3 (9.4)	
I do not listen to healthcare podcasts	10 (43.5)	0 (0.0)	10 (31.3)	

PSO = Podcast student organisation; [a]*p* < 0.05 considered to be statistically significant

Table III: Mean change in attitudes of respondents

	Mean change, *p*-value		
	Non-PSO members (n=23)	PSO members (n=9)	Overall (n=32)
Attitudes toward:			
Profession of pharmacy	-0.08, *p* = 0.718	0.11, *p* = 0.655	-0.04, *p* = 0.864
Topic of episode	0.26, *p* = 0.153	0.56, *p* = 0.129	0.34, *p* = 0.038[a]
Career pathway from episode	0.05, *p* = 0.922	0.89, *p* = 0.071	0.28, *p* = 0.233
PharmD curriculum	-0.04, *p* = 0.803	0.22, *p* = 0.317	0.03, *p* = 0.822
Career options within pharmacy	0.27, *p* = 0.289	1.11, *p* = 0.015 [a]	0.50, *p* = 0.023[a]
Connection to:			
College of pharmacy	0.04, *p* = 0.763	0.66, *p* = 0.034 [a]	0.22, *p* = 0.108
Faculty and staff	0.17, *p* = 0.317	0.34, *p* = 0.180	0.22, *p* = 0.124
Your curriculum	0, *p* =1.000	0.44, *p* = 0.046 [a]	0.12, *p* = 0.285

PSO = Podcast student organisation; [a]*p* < 0.05 considered to be statistically significant
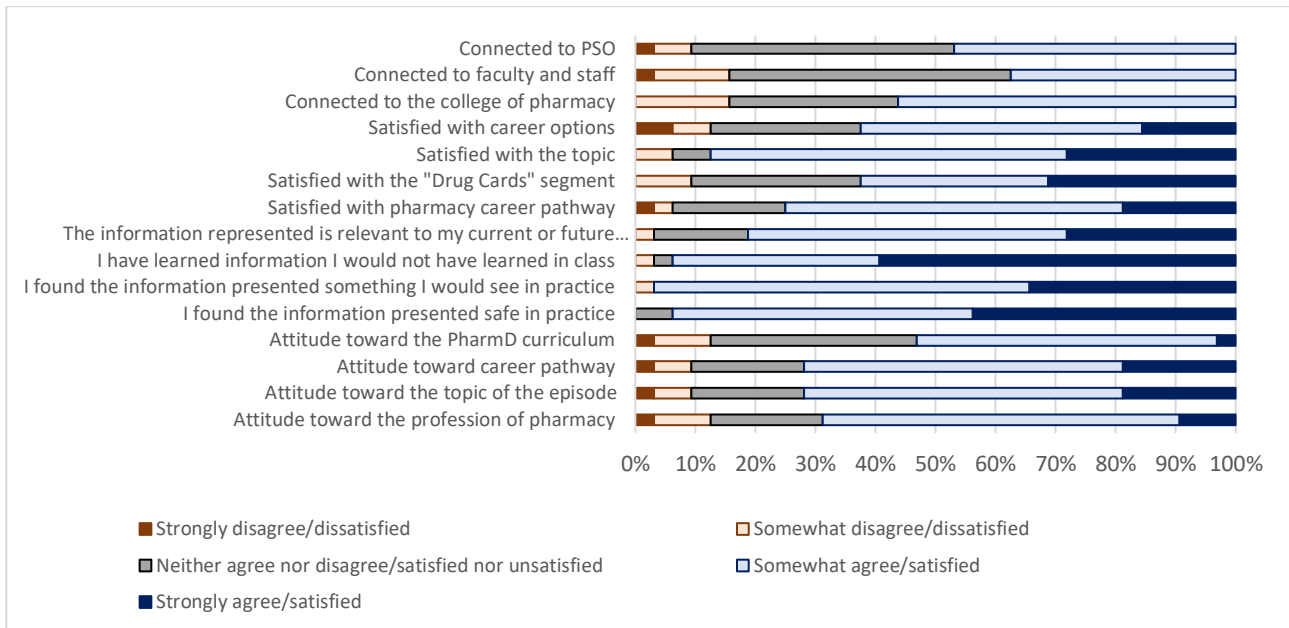
Figure 2: Post-survey satisfaction and attitude responses (n = 32)

Few significant differences were observed when comparing the podcast team to listeners who were not part of the podcast team. Compared with non-podcast team listeners, the podcast team had significant mean changes in the following attitude items: career options within pharmacy, college of pharmacy, and curriculum. Additionally, the magnitude of change was greater in PSO listeners compared with non-PSO listeners.

Advisor observations

The two faculty advisors made several observations while working closely with the students. Leadership opportunities were plentiful due to the PSO's unique organisational framework, which allowed for multiple levels of leadership. For example, students in editorial positions were responsible for giving feedback on their peers' writing. This approach provided excellent opportunities to practice professional communication skills and provide constructive feedback to students. Furthermore, the PSO's structure, with its many deadlines for completing outlines, scripts, and rounds of revisions, offered students numerous opportunities to practice effective time and project management skills, build confidence through the achievement of small tasks, and develop oral and written communication skills between peers and faculty.

The PSO served as a primary creative and educational outlet for students, allowing engagement with pharmacy topics aligned with their passions and interests, which fostered intrinsic motivation and in-depth exploratory paths. Over time, students' writing skills noticeably improved, as the PSO provided

students with an outlet to practice and receive critique and feedback, potentially improving their future written communication abilities. Advisors observed improvement in collecting and analysing drug information, with the PSO offering repeated opportunities to appropriately source, interpret, and reference biomedical literature. These literature evaluation skills, crucial for any pharmacist engaged in scholarly activities, were reinforced through the PSO, complementing the pharmacy curriculum, which may have limited opportunities for continued practice of these skills outside of literature evaluation-based courses.

Several challenges were experienced while advising the PSO, including the outline and script development, incorporating advisor feedback into scripts, proper citation, inclusive presentation of content, review time, and the development of advisor-student relationships.

Discussion

This work aimed to provide a blueprint for operating a PSO with three primary objectives, i.e. describing the PSO, reporting quality improvement results, and sharing lessons learned. The PSO description and the quality improvement results have been presented above. The discussion section contextualises these findings and elaborates on the lessons learned.

Listeners reported a statistically significant improvement in attitudes towards the topic of the

episode and the career options within the pharmacy after listening to the episode, suggesting that they liked the content overall. The authors believe the acclaim of the interview segment to be connected to the listeners' attitudes towards career options, given that the interviewee is typically from a niche area of pharmacy practice. Satisfaction with this section may explain the positive attitude change towards career options within pharmacy after listening to an episode.

The podcast team's deeper involvement in the interview process may have caused them to be more inspired by this segment. The higher mean change in members' connection to their college of pharmacy may be attributed to their pride in producing content for a national audience while representing their institution. The increased change in their connection to the curriculum could stem from their interactions with course material when researching the topic and recalling content from their coursework.

The podcast team reported a statistically significant improvement in attitudes towards both the college of pharmacy and the curriculum as a result of their involvement. This positive shift towards the curriculum may be due to the opportunity to apply didactic knowledge when dissecting and interpreting new information through their literature review process. Other anecdotal observations from the advisors are reported below.

Limitations

While this study provides information about the structure and operation of the PSO, it has several limitations related to the analysis of listeners' attitudes. The sample size was small, with an unequal representation of podcast listeners across groups. The attitude questions did not undergo a validation procedure. Potential confusion between the "*attitudes towards the PharmD curriculum*" and the "*connection to the curriculum*" survey questions may have affected responses, as the former aimed to assess feelings about the taught content while the latter focused on the connection to their learning experience and the taught content. More direct wording may have made this nuance clearer. Lastly, low post-survey completion rates prevented the analysis of individual respondents across multiple episodes. While these limitations constrain the extrapolation of results, the primary purpose of gathering these data was to share a sample of perspectives regarding the organisation and provide a blueprint for institutions rather than scale the results to a broader population. To that end, the authors have shared additional lessons learned below.

Additional lessons learned

Advisors faced challenges when providing feedback on outline and script development. As new students with various levels of writing experience entered the writing role annually, additional review time was required when writers turned over each year. Advisors focused on aspects affecting listener comprehension while keeping writers' "*voices*" intact throughout the editing process. One issue with feedback in the editing process was that writers were unsure whether remarks were suggestions or mandated changes. In response, a system was established labelling comments as major (required changes), minor (suggestions), or kudos (compliments). For example, a comment in an episode script read, "*Major: this statement requires citation*."

Challenges related to citation during the script-writing process were among the most prevalent in the reviewing process. While pharmacy students learn proper citation in the PharmD curriculum as part of Domain 1: Foundational Knowledge (2013, Centre for the Advancement of Pharmacy Education Educational Outcomes), applying this to the podcast format was new to them (Medina *et al.,* 2013). Citation is critical for students to avoid plagiarism, give appropriate credit, and provide credibility or context to the content. Another challenge with reference selection was guiding students to choose reputable sources. The last challenge related to the citation process was the lack of critical literature evaluation, resulting in drawing conclusions not supported by the chosen literature or failing to disclose the limitations of the literature where relevant. Some students had not taken a literature evaluation course by the time they became writers; thus, advisors provided additional teaching and guidance in these instances.

Maintaining objectivity and authenticity in content presentation was crucial across all topics and required an inclusive discussion. In some cases, references were selected in a biassed manner and used for narrative support without presenting an alternative viewpoint. Advisor reviews have since functioned as the mechanism for identifying and providing feedback on these occurrences. Advisors also provided a rationale for improving word choice while respecting writers' colloquial and authentic voices in their creative work.

The time to complete an adequate review of the outlines and scripts emerged as the most significant challenge for the advisors. The processes of reading the content, verifying and reading references, and providing feedback were time-consuming. In total, each episode required three reviews by both advisors. Complex issues have sometimes diverted attention from the review to other content areas, such as when a student's in-depth exploration of a particular idea was

misaligned with episode objectives. Such issues required considerable effort to process electronically and may have overshadowed efforts to revise other components of the script. Over the past three years, the review system has been improved to allow longer turn-around time (from seven days for two scripts to seven days per script), apply version history tracking, move away from live shared documents, and improve feedback implementation processes.

Another unique challenge advisors faced was the barrier to personally getting to know many students within the PSO, primarily due to limited face-to-face interactions and reliance on electronic communication. This limited contact affected advisors' ability to provide optimal support or write recommendation letters. For many pharmacy students, the source of recommendation letters stems from the mentor-mentee relationship. While students may have assumed their dedication was evident, advisors often focused on content without consistently tracking individual contributions. To address this issue, advisors plan to incorporate more intentional opportunities for relationship building and mentorship, aiming to better support students' professional development and provide insightful recommendations.

Future plans for the PSO

Advisors anticipate several changes in the coming years. The PSO will gather data for continuous quality improvement to shape the podcast to meet listeners' needs. The data gathered, along with listening trends, can be used for continuous quality improvement or potential research opportunities. Advisors intend to incorporate training for content developers at the beginning of their term to avoid reactive approaches to challenges faced with annual turnover. The most recent leadership team showed interest in having an in-person meeting component that would ensure a smoother delivery of information and improve the relationship between the faculty advisors and the podcast team. Lastly, advisors aim to establish a new officer position for a third-professional-year student to review the literature of the scripts before advisor evaluation. This approach is expected to enhance the quality of the writer's section, provide an opportunity for literature evaluation practice for the student reviewer, and reduce the advisor's review time.

Implementing these lessons learned has been laborious, requiring buy-in from students, advisors, and the college of pharmacy. The PSO president has played the largest role in implementing changes by creating policies for the organisation and instituting cultural shifts in expectations to get the PSO membership on board. Advisors and the Dean of Student Services have advised the PSO, but much of the implementation has been done by the PSO president and leadership team.

Conclusion

The PSO has become a staple of the college and is a novel opportunity to merge pharmacy knowledge and creativity for pharmacy students. It may also help improve attitudes towards certain topics and promote school spirit. This description and the lessons learned could serve as a blueprint for other colleges of pharmacy. In the future, data can be gathered across multiple programmes to establish best practices and foster collaboration between podcasts. Other colleges of pharmacy should consider starting a PSO to deliver pharmacy-based topics of interest to their students.

Conflict of interest

The authors have no conflict of interest or financial disclosures to declare.

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Ethics approval and informed consent

This study was approved as exempt from Board review by the University of Houston Institutional Review Board.

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