Qualitative Research

Student Pharmacist Engagement in Infographic Creation to Increase Awareness of Impostor Phenomenon

Viveca Vélez Negrón, Laurie L. Briceland⁎, Paul M. Denvir

A R T I C L E   I N F O

Keywords:
Impostor phenomenon
Infographics
Peer-to-peer engagement
Professional identity formation
Student pharmacist well-being

A B S T R A C T

Objective: To assess first professional year (P1) students learning about impostor phenomenon (IP) through participation in learning activities featuring the creation of an educational IP infographic.

Methods: A total of 167 P1 students were invited to complete a validated survey to determine baseline IP tendencies and attended a near-peer-delivered course lecture on IP. Student groups of 4 created an infographic containing IP lecture information and survey results, aimed at increasing IP awareness in a target audience. Mixed methods were integrated to assess learning outcomes. Qualitatively, infographics were evaluated by rubric for completeness, accuracy, and visual literacy, and student reflections were thematically evaluated on the impact of IP activities; quantitatively, 19 student learning objectives were anonymously self-assessed by Likert Scale survey. Students viewed all 42 created infographics, applied criteria, and voted for the 3 best.

Results: Survey results indicated 58% of P1 students exhibited IP tendencies above the scale’s defined threshold for significant impostorism. Student groups demonstrated IP learning through developing creative, accurate, and concise infographics, with a mean score of 85% (4.27/5). Assessment survey respondents agreed they can confidently describe IP (92%) and design an infographic for a target audience using acquired knowledge (99%). Through critical reflections on the impact of IP exercises, students expressed improvement in self-awareness and communication skills; described the benefits of engagement in random peer groups; and voiced appreciation for a novel method of learning material (infographic creation).

Conclusion: Students demonstrated learning about IP by incorporating lecture and survey results into engaging infographics and expressed benefits from learning about this important topic that is prevalent in P1 students.

1. Introduction

First coined in 1978 by Clance and Imes,1 the term impostor phenomenon (IP) is attributed to individuals who doubt their well-founded abilities and experience persistent fear of exposure as a fraud.1,2 Initially, IP was thought to occur primarily in high-achieving women with advanced degrees and subsequently has been shown to be prevalent among individuals of any demographic or professional background, including pharmacy and other health profession students, residents, practitioners, and faculty.3–9 If not addressed, IP can lead to mental health concerns such as burnout, anxiety, and low self-esteem, as well as the inability to recognize well-deserved accomplishments; potential repercussions include hindering one’s professional identity formation, and ultimately career advancement.8–12 A first step to minimize IP tendencies in pharmacy professionals is to educate practicing and student pharmacists on manifestations and strategies to address IP.13,14 We reasoned that it is important to introduce IP to student pharmacists early, during the first professional year (P1). Early exposure can inform students that their detrimental misconceptions have a name (known as IP) and occur frequently in student pharmacists. Additionally, strategies to reduce the negative impact of IP on personal and professional growth can be provided to students. Although recent studies from Boyle and colleagues3 and McWilliams and colleagues4 have identified frequent IP tendencies in student pharmacists, neither describe interventions to educate students and reduce the impact of IP, and the authors of those studies have advocated such interventions as next steps. We aimed to address this gap by introducing IP in a required P1 pharmacy course and creating an innovative educational module incorporating traditional didactic instruction based on published literature,

⁎ Corresponding author.
E-mail address: laurie.briceland@acphs.edu (L.L. Briceland).

https://doi.org/10.1016/j.ajpe.2023.100074
Received 4 October 2022; Received in revised form 30 December 2022; Accepted 16 February 2023
Available online 9 May 2023
0002-9459/© 2023 American Association of Colleges of Pharmacy. Published by Elsevier Inc. All rights reserved.
along with peer-to-peer collaborative learning activities incorporating visual communication. Peer interactions play an invaluable role in increasing student learning, engagement, and inclusivity within a didactic course, especially in online environments that have become more commonplace due to the COVID-19 pandemic. Visual communication, with its focus on accessible symbols, imagery, and data presentation, is gaining in popularity in health science education, often used to supplement formal didactic educational methods. Visual communication can prove highly effective, as humans can remember up to 6.5 times more information that is presented visually rather than in textual format. Through visual communication, educators employ diagrams, flow charts, graphs, or illustrations instead of solely written text to explain complex concepts to learners. One type of visual communication used in health science education is the informational graphic or infographic. Infographics are designed to tell a story featuring visualizations with clear, concise, and comprehensive messaging aimed at attracting the reader’s attention and prompting a change in behavior in a target audience. The creator of the infographic benefits by applying knowledge about the topic they have researched, strengthening analytic and critical thinking skills, promoting clear/concise communication in writing skills, enhancing efficiency in literature retrieval, and gaining valuable experience in creative graphic design, a transferable skill for our P1 students to learn for future applicability in educating patients and the public.

The study objective was to assess P1 student learning about IP through participation in varied learning activities, featuring a group activity in which an educational IP infographic was created for a target audience. More specifically, the study aim was to assess P1 student pharmacists’ baseline levels of IP tendencies, knowledge about IP, competence, and confidence in communicating about IP through infographics, and perceptions of the educational and professional impact of this learning experience.

2. Methods

A mixed methods design combining quantitative and qualitative data was employed in the assessment of the IP learning activities, which were mapped to 10 different Center for the Advancement of Pharmaceutical Education (CAPE) educational outcomes (Table 1).

This evaluation assessed P1 student pharmacists’ baseline levels of IP tendencies, knowledge about IP, competence, and confidence in communicating about IP through the visual medium of infographics, and perceptions of the educational and professional impact of this learning experience. The project was conducted at Albany College of Pharmacy and Health Sciences, a private college in New York that offers a traditional 4-year Doctor of Pharmacy program. The project underwent Institutional Review Board review and met the criteria for exemption from the requirements of federal regulations.

During the fall semester of 2021, all P1 class members (n = 167) enrolled in our required Foundations of Pharmacy course were invited to voluntarily participate in an online IP survey. The survey was intended to determine baseline IP tendencies and was anonymously administered using Qualtrics software (Provo, UT). The survey included the 20-item validated Clance Imposter Phenomenon Scale (CIPS), as well as 4 demographic questions, gender identity; race/ethnicity; prior years of college before P1; and first-generation family member to attend college. Upon submission of the survey, students were immediately able to view their own CIPS scores. The CIPS survey yielded scores between 20 and 100, with IP tendencies categorized as follows based on the attained score: Few (40 or less); Moderate (41 – 60); Frequent (61 – 80); and Intense (higher than 80). The lower the score, the lower the chance students perceived the threshold for IP, which could warrant strategies and resources to address IP.

Two weeks after completion of the IP survey, students in the course received a 30-minute synchronous online IP lecture delivered by a near-peer P3 student (the first author who was completing an independent study professional elective centered on IP) via the Zoom platform (Santa Clara, CA). The lecture included an introduction to the topic of IP; an overview of its prevalence and consequences in pharmacy; strategies to reduce IP tendencies; descriptive statistics generated by class responses to the IP survey presented in visual data formats (tables, pie charts, and bar graphs); and literature citations supporting the lecture. Immediately after the didactic instruction, students were randomized to 42 online Zoom breakout groups of 4 to create an infographic designed to educate a target audience about IP and provide strategies for reducing its negative impacts. Each group was instructed to select 1 of 4 target audiences within the college community whom they wished to educate: future P1 students during P1 orientation; upper-class members of the student pharmacist body; faculty advisors or preceptors; or student leaders planning co-curricular programming. Groups were instructed that their infographics must include 4 elements: (1) 3 pieces of background information from the P3 student’s lecture, such as IP definition, manifestations, prevalence in student pharmacists, or repercussions if left unchecked; (2) 2 data visuals from the students’ aggregated IP survey results, such as IP tendency data in P1 cohort, or demographic comparisons of IP; (3) 2 strategies to reduce IP tendencies, such as employing self-reflection/self-care, seeking assistance from faculty or peers, or seeking professional mental health counseling; and (4) at least 2 citations from the literature. Students were provided with 2 sample infographics (created by first author) as well as links to instructional resources on infographic design in multiple software formats, including Microsoft PowerPoint and Canva (Sydney, Australia). Students worked collaboratively in their groups during the remainder of the class period, and the authors (instructors for this exercise) fielded questions as needed; students completed the assignment asynchronously during the week, with the assignment upload due at week’s end.

A 5-point grading rubric (out of 100 points in the course) was created by the authors and used to grade the infographics; it contained 2 main components: educational value (presenting required information accurately and concisely), and creativity (layout and visual appeal). Students were informed that their infographics would be displayed in an assignment-specific Padlet (San Francisco, CA), a software platform.
that can emulate social media interfaces, and were invited to anonymously cast 3 votes that would be used to award the ‘Top 10 Infographics’ for the assignment. Our rationale for including the voting was that students would need to apply what they would have learned about both IP and infographic design in analyzing the strengths of their peers’ work. Criteria that students were to consider in voting for a top infographic included: visual appeal (creative and eye-catching); ease of reading and understanding; meeting the purpose of educating the target audience about IP; and including accurate data and references for support. The class was informed that they would be notified of the Top 10 Infographic awardees and that 3 of the Top 10 infographics of the instructors’ (authors’) choosing would be de-identified and shared with the Director of Pharmacy Professional Affairs for use in “real world” outreach in the college community.

After completing all learning activities, students were invited to complete a voluntary, anonymous 19-item electronic learning assessment survey using Likert-type scalar responses through the platform Poll Everywhere (San Francisco, CA), 1 = Strongly Disagree; 2 = Disagree; 3 = Agree; 4 = Strongly Agree; 5 = Not applicable. Respondents self-reported their knowledge and confidence with respect to explaining IP, reflecting on their own IP scores, analyzing IP survey data for the class, and designing infographics. Additional items focused on relevant CAPE educational outcomes that were covered by these IP exercises, including verbal/non-verbal communication, teamwork, responsibility, professionalism, and creativity. Respondents also rated the educational impact of each of the 4 components of the experience: IP survey; near-peer lecture; peer-to-peer collaboration on infographic creation; and Padlet voting exercise.

To gain a more nuanced first-hand perspective on this learning experience, a subset of students’ final reflection papers was thematically analyzed. The reflection paper was a required assignment, and students were free to select a course component from a list of several options upon which they would reflect. Of the 167 students who submitted reflections, 16 elected to reflect on the IP experience, all of which were included in the thematic analysis. The reflection prompt asked students to critically reflect in 500–600 words on 1 learning experience in the course and consider its contributions to transforming their future in pharmacy.

2.1. Data Analysis

To assess overall IP tendencies from the IP survey cohort, basic descriptive statistics (range, mean, frequencies) were generated for future inclusion in the student-created infographics. To assess student learning, evaluation procedures included: grading rubric for student-created infographic (required assignment and thus data expected for all students); learning assessment survey (optional activity); and analysis of final reflection papers (available for self-selected subset of students who opted to address IP for reflection assignment).

The infographic grading rubric was completed independently by all 3 members of the instruction team (authors), who then compared and adjusted their scoring to enhance reliability of final scores. For the learning assessment survey, basic descriptive statistics (mean, frequencies) were generated for each item. The analysis of final reflection papers employed inductive thematic analysis, a qualitative method well-suited to the analysis of textual data. Induction is a “bottom-up” process in which relevant themes emerge out of repeated exposure to data, rather than through the application of pre-existing theoretical concepts or categories. Analysis proceeded in 3 waves. In wave 1, the second and third authors read each reflection and entered free-text comments to identify recurring topics and themes of interest. Using insights from wave 1, the qualitative analysis software Atlas.ti (Corvallis, OR) was used to develop an 18-item coding framework, essentially a list of topics/themes that could be applied to the full data set. In wave 2, the third author created relevant text extracts from each reflection and applied the coding framework to them. Selecting the boundaries of a text extract requires some judgment, but the goal is to capture a complete thought and its surrounding context; in this analysis, text extracts were generally 3–6 sentences long. The total number of extracts was 54 and the average number of extracts per reflection was 3.4. Wave 2 resulted in a refined coding framework as it became clear that some of the 18 initial codes, while potentially insightful, did not apply to enough extracts to warrant further analysis. The revised coding framework included 9 coding categories, with an average of 11 extracts in each category. In wave 3, the first and third authors closely analyzed and discussed interpretations of the 9 coded collections that were most relevant to the current analysis. This process yielded 4 main themes.

3. Results

Of 167 students, 163 (97.6%) completed the voluntary IP survey to determine baseline IP tendencies in the cohort. Table 2 provides the distribution of IP tendencies for respondents based on the score attained on the CIPS and demographics surveyed. A total of 89% (n = 145) of respondents presented with at least moderate IP tendencies. The median CIPS score for all respondents was 62.5, indicative of the presence of frequent and intense IP tendencies in 58% of the cohort. A larger percentage of females than males, students with <2 years of pre-pharmacy studies, Asian students, and students who were not the first in the family to attend college were at or above the IP threshold. Of the 42 infographics submitted by the groups, all but 2 featured future P1 students as the target audience. The average score on the 5-point grading rubric was 4.27 (85%). Fig. 1 shows the Top 3 Infographics, as determined by student voting on the Padlet poll, and affirmed by instructors/authors. All 42 infographics are displayed on the Padlet and are available to readers upon request to the authors.

For the voluntary learning assessment survey, 139/167 (83.2%) of students responded. Table 3 provides the results of the student’s level of agreement with their attainment of the learning objectives of the IP exercises. More than 80% of respondents agreed or strongly agreed with the statements, lending evidence toward the achievement of the
learning objectives. Students were also surveyed as to the impact of participation in 4 components of the IP exercises and stated at least moderate or significant impact in participation in the following exercises: peer group exercise to create an infographic (79% of respondents); polling Padlet for ‘Top 10 infographic’ (67%); IP lecture with question/answer period (88%); and completion of IP validated survey (93%).

For the thematic analysis of student reflections, Table 4 summarizes the 4 main themes and the number of extracts that support them, including a representative quotation for each. The themes identified in this sub-sample of students reinforce quantitative evidence that students perceived value in the core elements of this learning experience: peer-to-peer engagement, reflecting on IP as a matter of professional identity formation and development, and developing novel visual communication skills in an emerging, creative medium of health communication. Although peer-to-peer engagement is typically framed as a method of developing interpersonal communication skills, students also described it as an opportunity to cultivate intrapersonal (cognitive or socio-emotional) qualities such as confidence and trust. One sub-theme specifically addressed the value of random group assignments, which required students to develop rapport quickly with strangers, a skill many perceived as highly relevant to their future as pharmacists working with both patients and other health professionals. Another key insight from this analysis is the power of naming and normalizing IP. Many extracts in this theme indicated that naming IP for the first time, providing a concrete term for this nagging and isolating emotional experience, was a comforting revelation. The ability to see the aggregated class results on the IP survey served as a further normalizing influence, surfacing a largely unspoken but widely shared psychological experience in their cohort. Several students described having conversations about this while working in their groups. Finally, students spoke of the value of applying IP knowledge in at least 2 ways. First, they indicated that applying new knowledge to inform others was more engaging than traditional knowledge assessment techniques (ie, quizzes) and instilled a sense of responsibility to be factually accurate. Second, several students indicated that they had personally begun to use IP coping strategies they had learned in their own lives. Although the idea of applied learning is often associated with academic output, these data provide evidence that this assignment also prompted a self-directed application of learning.
4. Discussion

Recent studies from Boyle and colleagues\(^3\) and McWilliams and colleagues\(^4\) have identified that IP is prevalent among student pharmacists and have noted a gap in addressing this important topic in pharmacy curricula. Our initiative narrows that gap by providing an educational module on IP to P1 students within the first semester of the degree program. Our module contains a series of 4 IP learning activities in which students found merit and demonstrated learning, beginning with the CIPS survey. Our IP survey data predictably identified over one-half of our P1 cohort exhibiting IP tendencies above the IP threshold, corroborating previous studies reporting similar IP prevalence in student pharmacists.\(^1\)\(^2\)\(^3\) Our reasoning for employing the CIPS survey was not to further study the prevalence of IP in P1 student pharmacists per se, but rather to use the survey to set the stage and serve as a foundation for the remainder of our planned IP learning activities. Our premise was that through participation in the survey, students would become aware of the attributes of IP and would be primed to learn more about what their individual scores signified. Students would then progress to the second learning activity, the near-peer-delivered IP lecture, and would formally learn about IP and methods to address it. Armed with their own IP survey score and new knowledge on this topic, students could then self-reflect upon the meaning of that score, and as needed develop a personal plan of help-seeking action to address IP tendencies. The IP survey data would also be included in the third learning activity, the creation of the educational infographic for a target audience.

These 3 learning activities (ie, CIPS survey, IP lecture, infographic creation) positively impacted students’ learning of IP as more than 75% of respondents indicated on the learning assessment survey at least moderate impact for each activity. Upon qualitative analysis of the critical reflection comments, we learned that the IP survey coupled with the IP lecture proved to be quite eye-opening for P1 students (Table 4). Specifically, these learning activities provided opportunities for students to develop self-awareness, overcome doubts about belonging in pharmacy, and prioritize their mental health and well-being, which is critical in pharmacy curricula.\(^28\) The IP lecture and survey results increased confidence by normalizing IP. Realizing there is a name for these tendencies and seeing cohort data that confirmed they are not alone was a comforting validation. These IP learning activities and their beneficial learning outcomes are well-aligned with the self-awareness domain “engaging in help-seeking behaviors when appropriate” within the CAPE Outcomes for pharmacy programs.\(^3\) Indeed, many of these attributes that students valued from the IP exercises were noted by authors of previous studies as often lacking or limited in pharmacy curricula, such as the early introduction of IP to increase awareness and begin to address IP in student pharmacists; the opportunity to reflect upon a learning experience and receive instructor feedback; and creation of infographics in pharmacy education as an active learning strategy.\(^4\)\(^17\)\(^29\)

When considering the infographic learning activity, the sample of 3 infographics in Fig. 1 (as well as the remaining 39 infographics, not shown), demonstrates how students incorporated the IP lecture and survey data using creative visual communication approaches. Upon evaluating the learning outcomes of the infographics using our assignment rubric, 85% of student groups earned perfect scores, demonstrating their understanding and effective utilization of visual communication for providing education to a target audience. Interestingly, each group creatively highlighted differing pieces of IP survey or background information that resonated with them; no 2 were alike. The students revealed in critical reflections that the creation of an infographic was an engaging way to learn new material and stimulated creativity in unexpected ways, underscoring the value of conciseness and clarity in infographic-based health communication. The CAPE Outcomes include an innovation domain in which pharmacy curricula should engage students in creative thinking to envision better ways to meet the intended purpose;\(^28\) the IP infographic creation proved to be an excellent opportunity for students to creatively interpret and communicate data in developing educational materials for a target audience and will provide a framework for students to extend their infographic design skills to future patient care applications.\(^17\)\(^21\)

The peer-to-peer engagement aspect of the infographic exercise also made an impact on students, as expressed in critical reflections. Group work provided a context for developing intrapersonal qualities (confidence, trust) and interpersonal skills (mutual compromise, rapport) needed for professional identity formation.\(^17\) Specifically, it served as an icebreaker for some students who knew no one else in the class, and allowed students to develop verbal communication and collaborative

---

### Table 4

<table>
<thead>
<tr>
<th>Prompt Based on my participation in IP exercises, I can confidently:</th>
<th>Strongly agree (%)</th>
<th>Agree (%)</th>
<th>Disagree (%)</th>
<th>Strongly disagree (%)</th>
<th>Not applicable (%)</th>
<th>Likert score median</th>
</tr>
</thead>
<tbody>
<tr>
<td>Define IP</td>
<td>79 (57)</td>
<td>49 (35)</td>
<td>5 (4)</td>
<td>6 (4)</td>
<td>0 (0)</td>
<td>4</td>
</tr>
<tr>
<td>Distinguish IP from self-doubt and perfectionism</td>
<td>37 (27)</td>
<td>93 (67)</td>
<td>7 (5)</td>
<td>2 (1)</td>
<td>0 (0)</td>
<td>3</td>
</tr>
<tr>
<td>Describe IP prevalence in students and pharmacists</td>
<td>71 (51)</td>
<td>62 (45)</td>
<td>3 (2)</td>
<td>3 (2)</td>
<td>0 (0)</td>
<td>4</td>
</tr>
<tr>
<td>Identify causal factors of IP</td>
<td>45 (32)</td>
<td>79 (57)</td>
<td>14 (10)</td>
<td>1 (1)</td>
<td>0 (0)</td>
<td>3</td>
</tr>
<tr>
<td>Reflect on individual IP score</td>
<td>67 (48)</td>
<td>67 (48)</td>
<td>4 (3)</td>
<td>1 (1)</td>
<td>0 (0)</td>
<td>3</td>
</tr>
<tr>
<td>Explain strategies to address IP</td>
<td>52 (37)</td>
<td>75 (54)</td>
<td>10 (7)</td>
<td>2 (1)</td>
<td>0 (0)</td>
<td>3</td>
</tr>
<tr>
<td>Motivate self to address tendencies</td>
<td>44 (32)</td>
<td>81 (58)</td>
<td>10 (7)</td>
<td>4 (3)</td>
<td>0 (0)</td>
<td>3</td>
</tr>
<tr>
<td>Analyze IP data from peers</td>
<td>54 (39)</td>
<td>75 (54)</td>
<td>7 (5)</td>
<td>1 (1)</td>
<td>2 (1)</td>
<td>3</td>
</tr>
<tr>
<td>Apply data to promote IP awareness</td>
<td>45 (32)</td>
<td>87 (63)</td>
<td>5 (4)</td>
<td>1 (1)</td>
<td>1 (1)</td>
<td>3</td>
</tr>
<tr>
<td>Design an infographic for target audience using acquired knowledge</td>
<td>67 (48)</td>
<td>70 (50)</td>
<td>0 (0)</td>
<td>1 (1)</td>
<td>1 (1)</td>
<td>3</td>
</tr>
</tbody>
</table>

Likert Scale: 1 = Strongly Disagree; 2 = Disagree; 3 = Agree; 4 = Strongly Agree; 5 = Not applicable.

Abbreviations: CAPE, Center for the Advancement of Pharmaceutical Education;\(^28\) IP, impostor phenomenon.
Themes Highlighted in Student’s Course Reflections.

**Develop Confidence**

I found this to be positively impactful because later down the line when I'm working as a pharmacist I will have to work with physicians and patients that I have never even met before. I felt this exercise to be a good way to recreate that same sort of experience.

**Explanation**

Learning about the symptoms and reviewing the data from the class thereby externalizing it as an obstacle to overcome; access to aggregate peer data further normalized the feeling. Designing infographics was an engaging way to learn new material, it stimulated creativity in unexpected ways and highlighted the value of conciseness and clarity in health communication. Developing confidence and trust and interpersonal skills (mutual compromise, rapport) needed for professional identity formation. This interaction made me realize that this type of trustworthy interaction needs to happen in healthcare more. My group and I had a true and honest conversation without judging one another while working to complete a goal of an IP infographic.

**Value of IP survey reflection**

I am not alone—this experience connected me to the collective experience of my cohort. My colleagues and I had a sense choosing to “pay it forward” to the next cohort who they knew would be likely to experience IP tendencies themselves. Becoming aware that the top infographics would be shared with the Director of Pharmacy Professional Affairs for use in P1 orientation made this P1-future P1 connection that much stronger. Sharing the 42 class infographics on Padlet continued the virtuous cycle. Although we did not treat their voting as a formal assessment method, many students commented in their reflections that this created a safe and anonymous context for healthy peer comparison, noticing the strengths and weaknesses of their own group work and appreciating the skills that their peers were bringing to the pharmacy program and future profession. Completing this positive peer-to-peer feedback loop is the fact that this learning experience has led to multiple research products for the first author, now a P4 student, providing yet another platform for future success. Although it may not be possible for every student pharmacist to have this experience, the broader lesson we draw is that pharmacy curricula can benefit by looking for novel ways to create virtuous cycles among our students, not just within cohorts, but across cohorts.

There are limitations to our work, which was derived from 1 cohort at 1 college of pharmacy. We did not administer a pre-assessment survey to determine the students’ IP knowledge at baseline and serve as a comparator for the post-activity assessment questions, which may have demonstrated growth in learning. Further, because students worked in groups to design their infographics, it was not possible to assess individual knowledge or competence in infographic creation; it is possible that highly knowledgeable students or those with strong visual communication skills masked deficiencies in other group members. Thematic analysis of student reflections was limited to a sub-sample of students who self-selected to write about the IP exercises and, as such, we cannot be sure how representative their views are in the full class sample. Although we included these data to provide a richer first-hand perspective on the educational potential of this experience, readers should be cautious in overgeneralizing these results. Future scholarship exploring this approach to IP education could be strengthened by conducting student focus groups to gain richer insights into the teamwork dynamics involved in creating innovative educational materials. Additional instructional resources on visual communication/infographic creation could raise performance standards and provide for a more nuanced grading rubric to better assess multiple dimensions of infographic design.
5. Conclusion

First-year pharmacy students reported learning about IP through the IP learning activities, including the CIPS survey, IP lecture, and infographic creation, and demonstrated the ability to create innovative educational materials through the emerging medium of infographics. Students found participation in IP exercises and peer-peer engagement to be impactful in various ways, as described in critical reflections and learning assessment surveys.

Acknowledgments

Cecily Corbett and Paula Zeszotarski from Institutional Effectiveness for assistance with Qualtrics survey; Lily Shafer-Lahun for assistance with Padlet and Poll Everywhere course tools; Angela Palmer for assistance with Figure graphics.

Declaration of Competing Interest

None declared.

Funding/Support

None declared.

References


American Journal of Pharmaceutical Education 87 (2023) 100074

V.V. Negrón, L.L. Briceland and P.M. Denvir