

ACADEMIC PHARMACY SECTION SPECIAL ISSUE

50 YEARS OF ACADEMIC PHARMACY SECTION

Steps forward for the International Pharmaceutical Federation (FIP) Academic Pharmacy Section: President's message

Toyin Tofade¹, Naoko Arakawa²

¹ Albany College of Pharmacy and Health Sciences, United States

² School of Pharmacy, University of Nottingham, United Kingdom

Keywords

Goal
Mission
Objective
Strategic implementation plan
Vision

Correspondence

Toyin Tofade
Albany College of Pharmacy and Health Sciences
United States
toyin.tofade@gmail.com

Abstract

Academic Pharmacy Section (AcPS) of the International Pharmaceutical Federation (FIP) has a strong strategic implementation plan already in place. The Executive Committee (ExCo) determined ways forward by reviewing some key documents and conducting an environmental scan on higher education and the future of Pharmacy. In a retreat in April 2022, using a World Café method, the ExCo received valuable input regarding the identity of the organisation, who the members are, what has been accomplished in the section and an assessment of the sections strengths, weaknesses, and opportunities. This has culminated in the evolution of the section's mission, vision, and strategic implementation plan to incorporate additional and restructured objectives and goals. This manuscript presents novel direction to this section and an opportunity to reflect on the vision of the ExCo from the 2022 retreat.

Introduction

Founded in 1972, the Academic Pharmacy Section (AcPS) of the International Pharmaceutical Federation (FIP) has a mission to “serve as an international source for networking, collaboration and inspiration for educators to transform pharmaceutical education for the purpose of advancing practice and science to meet present and future health needs in communities around the world” (International Pharmaceutical Federation, 2022).

The COVID-19 pandemic has led to a fast-paced transformation of the delivery of health care and quality education globally. In the past year, FIP conducted several regional workshops and a global summit on the University Twinning and Networking Programme (UNITWIN) that harvested several regional needs, challenges, strengths, weaknesses, opportunities, and threats on education-related matters in each World Health Organisation (WHO) region (UNITWIN Programme, 2021). This analysis was

in consultation with a wide variety of stakeholders, both externally and internally – AcPS, the Academic Institutional Membership (AIM), and the Workforce Development Hub (WDH). Furthermore, key organisations or institutions around the world have provided reports or insights into what to expect for the future.

The future of higher education

The 2021 Educase Horizon report (EDUCASE, 2021) on teaching and learning summarises expertise to identify trends under five categories (social, technological, economic, environmental and political).

Under the social category, remote work or learning, widening of the digital divide, and mental health issues are likely to persist. Under the technological category, widespread adoption of hybrid learning models, increased use of learning technologies and adoption of online faculty development will be expected as a cost saving measure and to minimise travel. Clearly, the pandemic has largely influenced

these findings and the other category trends. Economic trends can be foreseen as a decrease in funding for higher education and a lack of clarity about the demand for novel competencies and economic models. Political trends are expected to include an increase in online globalisation, a rise in nationalism and a decrease in public funding for higher education. Lastly, environmental trends such as climate change and a reduction in travel for work, plus a re-emphasis on sustainable development goals, are expected to remain influencers of how teaching and learning is approached.

Using a modified Delphi technique, the authors were able to identify key technologies and practices that are expected to have an impact on the future of higher education. These key technologies and practices include artificial intelligence (AI), blended and hybrid course models, learning analytics, micro-credentialing, open education resources and quality online learning (Educause, 2021). These findings are similar to what was predicted by Arthur Levine and Scott Van Pelt in their book, *The Great Upheaval: Higher Education's Past, Present and Uncertain Future* (Levine and Van Pelt, 2021). Additional predictions from the authors include a decrease in institutional control of higher education and an increase in the power of the higher education consumer. It is expected that higher education will experience a shift like the music, movies, and newspaper industries, where content producers will enter the market, driving competition and reducing prices. Furthermore, it is expected that outcomes and learning will eclipse the traditional focus on time, process, and teaching with degrees, hence the likely emergence of micro-credentialing due to consumer demand and changes in workplace needs. Non-degree and just-in-time certificates are expected to dominate (Levine & Van Pelt, 2021).

The future of pharmacy

With regards to the profession of pharmacy, the Deloitte Foundation published some insights that suggest an increase in the use of technologies to potentially disrupt healthcare (Deloitte Insights, 2020). Current technologies include health technologies, wearable devices, telehealth, diagnostic tools, robots, and health care bots and are expected to be more pervasive depending on adoption by consumers and costs. Furthermore, the use of new treatments (nutraceuticals, implants, gene editing, and programmable bacteria) and changes in medication delivery will change the physical look of the traditional pharmacy and likely result in the consolidation of health destinations with the use of ambulatory or community pharmacies a great deal.

With these potential disruptions, a shift to the reimbursement of pharmacies to a value-based model is expected (Deloitte Insights, 2020). The American Society for Health-System Pharmacists also published a forecast on pharmacy in 2022, which provides recommendations that are in alignment with what has been shared by Deloitte and includes the need to diversify the roles of pharmacists to improve the economic standing of the health-system pharmacy department (DiPiro *et al.*, 2022).

The future of pharmacists

With the COVID-19 pandemic elevating the role of pharmacists and their critical role in the delivery of health care around the world, the role of the pharmacist will also be impacted greatly (Deloitte Insights, 2020). An Insight regarding the role of the pharmacist in the future includes a focus on primary care specialising in prevention and wellness, managing chronic diseases, recognition as providers, automation, and AI analytical capabilities. As genomic data become more accessible, the pharmacist of the future is expected to assist with precision speciality medications, providing highly personalised care plans and participating in precision dosing. Furthermore, patients will be motivated by payers using healthy decision-making, wellness targets and drivers of health. Additionally, with the existence of massive data sets, pharmacists will be utilised more for their analytical skills and serve as consultants for machine learning, developing algorithms and programs for population health. Lastly, digital health will likely become more pervasive with the point of care testing and assisting consumers in the use of the growing technologies in health care.

Although a variety of circumstances and accelerators will determine how quickly these changes come to fruition, it is clear that health and wellness, expanded telehealth capabilities, and virtual and high-touch care are here to stay. This will mean that the pharmacist will need to be versed in advocacy and include other colleagues such as the pharmaceutical scientists, technicians, and health profession colleagues in conversation to ensure the continuity of interprofessional care and be ready "to meet patients where they are" (Deloitte Insights, 2021). Some of the global concerns are similar to those stated by Deloitte. Other concerns include vaccine availability and access, access to care with the widening gaps with technological advancements, and access to quality education.

As the section emphasises the sustainable development goals, it is critical that academic capacity remains at the forefront of the education organisations, schools, and colleges with a focus on

how to train the professionals to prepare, design, produce and monitor quality medicines while managing the supply chain disruptions. A major concern facing higher education around the world is declining enrolments and well-being challenges for students and faculty. Many of these global concerns present an opportunity to conduct research on ways forward in the practice, education and science of pharmacy and the pharmaceutical sciences.

The future of pharmacy education

There is a lot that faces the future of the pharmacy profession, the future of pharmacists, the future of higher education and the future of pharmacy education across the globe. The future pharmacy programme will need to educate and train students in a way that prepares them to be nimble, lifelong learners, advocates and leaders of the profession while maintaining the capacity to practice pharmacy and conduct research. To meet the ever-changing health needs and health system demands of future schools and colleges, the AcPS must reimagine itself to determine how it can best serve its members over the next several years so they can meet these growing societal demands.

Given that the AcPS will need to meet the needs of colleagues across the globe as they navigate changes they are facing in their respective regions, the Executive Committee (ExCo) decided to conduct a retreat to tackle how the section can position itself to serve educators and academic colleagues from around the world. This paper describes the process the section used as an ExCo to identify future directions for the section in a two-day retreat, the findings of the retreat and ways forward.

Methods

A virtual retreat was conducted among the AcPS ExCo in March 2022. The aim was to use this as an opportunity to set the goals and objectives of the section and chart a way forward. The questions asked by the ExCo included: "Who are we as a section?" "Who are our members?" or "Who do we serve?" "What has been accomplished?" "What are our strengths, weaknesses, opportunities and threats (SWOT analysis)?" and "What is the general assessment of our regional scope of the current and future status of higher education and the profession of pharmacy?" The retreat discussions were carried out over a period of two days, with each day deliberating for five hours with breaks interspersed.

The Vice President led the discussions on "Who are we as a section?" and "Who are our members?" or "Who do we serve?" using an interactive process involving small group discussions led by assigned facilitators and note-takers. Each member of the ExCo was able to contribute to a variety of questions for the day, considering the vision, mission, and goals. Afterwards, small group facilitators reported their summary findings to the large group.

Next, the ExCo proceeded to identify projects that had been accomplished over the past several years and determine the gaps in the strategic plan based on the environmental scan, reports from the state of pharmacy education in the different WHO regions, documents provided from the interview of past section presidents, a presentation on the future of pharmacy, pharmacists and higher education, the Global Vision for Education, Nanjing Statements on Pharmacy and Pharmaceutical Sciences Education and Pharmaceutical Workforce Development Goals (PWDGs), which was developed by FIPed as a roadmap to well-educated, competent, sufficient and well distributed pharmaceutical workforce, the FIP development goals, call to action report on advancing pharmaceutical education (Jordan *et al.*, 2021), and the UNITWIN Summit report.

Lastly, the ExCo went through a SWOT analysis using a Google Jamboard to organise and collate their thoughts and ideas on the section activities to date. Initially, the mission and vision statements were updated based on these findings. Subsequently, the AcPS strategic implementation plan was updated using the environmental scan of the profession in the different WHO regions, SWOT analysis, the updated mission and vision statements and relevant FIP documents shared earlier. The membership statement was also updated.

As a follow-up to this work, the ExCo conducted two town hall meetings, featured during different time zones in July 2022, to share the updated draft strategic implementation plan with the section members. At the July Town Hall meeting, the ExCo summarised the process taken to update the strategic plan, shared the working group progress on what the section has done so far since the last business meeting in 2021, and shared the suggested edits on each strategic plan goal including the objectives and suggested tactics. The section participants broke into small groups to allow suggestions and feedback from the members using an interactive process. After the town halls, the ExCo shared the draft plan with section members by email and invited additional input electronically. The plan is to collate the detailed feedback and share an updated version with our

members again. It is understood that these proposed updates and statement changes will still need to be presented to the section membership for final approval.

Results

The demographics of the section ExCo are shared in Table I, and Table II summarises the emerged themes of the SWOT analysis conducted by ExCo. To provide additional clarity on "Who are we as a section?" and who we serve, the membership statement was updated to reflect the following with the underlined sentences reflecting where the changes/updates occurred:

Membership with the Academic Pharmacy Section is open to individuals interested and/or involved in pharmacy or pharmaceutical education and training. Such people may include but are not limited to:

- Individual members of FIP who are engaged in teaching undergraduate, graduate, professional doctorate and/or postgraduate pharmacy or pharmaceutical science students;
- Individuals promoting an interest in the provision of quality continuing education through university, experiential sites, or professional organisations;
- Preceptors, adjunct faculty, trainers, educators, or teacher practitioners;
- Those engaged in research at faculties or schools of pharmacy or pharmaceutical sciences;
- Former university faculty and staff who are admitted as honorary members;
- Associate membership is open to all members of the Young Pharmacist Group (YPG) and the International Pharmaceutical Students Federation (IPSF). Associate members do not have voting rights.

Table I: Demographics of 2022 Academic Section Executive Committee

Office Term	Name	Country	FIP Office and Academic Affiliation
2021-2025	Toyin Tofade	United States	President AcPS President and Professor Albany College of Pharmacy and Health Sciences
2017-2021	John A. Pieper	United States	Immediate Past President AcPS President Emeritus, University of Health Sciences & Pharmacy in St. Louis
2019-2023	Arijana Meštrović	Croatia	Vice President AcPS Director, Professional Affairs Pharma Expert Consultancy and Education Assistant Professor, Doctor of Biomedical Sciences University of Split, Faculty of Medicine, School of Pharmacy
2021-2023	Naoko Arakawa	United Kingdom	Secretary AcPS Assistant Professor in International Pharmacy, School of Pharmacy, University of Nottingham
2021-2025	Carl Schneider	Australia	Treasurer Senior Lecturer, School of Pharmacy, Faculty of Medicine and Health, University of Sydney
2019-2023	Rula M. Darwish	Jordan	Executive Committee Member Professor in Pharmaceutical Microbiology Former Dean of School of Pharmacy, University of Jordan
2021-2025	Aukje Mantel-Teeuwisse	Netherlands	Executive Committee Member Professor of Pharmacy and Global Health, Director School of Pharmacy, Utrecht University Managing Director Utrecht Centre for Pharmaceutical Policy and Regulation. Division Pharmacoepidemiology & Clinical Pharmacology
2021-2025	Abdikarim Abdi	Turkey	Executive Committee Member Associate Professor of Clinical Pharmacy, Yeditepe University
2021-2025	Martin Henman	Ireland	Executive Committee Member Associate Professor in the Practice of Pharmacy, The School of Pharmacy and Pharmaceutical Sciences, Trinity College Dublin
2021-2023	Mansi Doshi	India	Executive Committee Member / Newsletter editor Adjunct Professor / Clinical Pharmacy Teacher Practitioner Parul Institute of Pharmacy & Research / MET Institute of Pharmacy, Mumbai / Anoushka Polyclinic, Powal, Mumbai / Private Rheumatology Clinic
2021-2023	Arinola Joda	Nigeria	Executive Committee Member Associate Professor & Ag. Head, Department of Clinical Pharmacy and Biopharmacy, Faculty of Pharmacy, University of Lagos

Furthermore, the vision and mission statements were also updated to provide additional clarity on the section’s purpose, in addition to expanding the list of groups served by the section so that the section can be

more inclusive. The changes are as follows, with the underlined sentences reflecting where the changes/updates occurred.

Table II: SWOT analysis of the Academic Pharmacy Section conducted in March 2022

SWOT Analysis FIP Academic Pharmacy Section		
Internal Focus	Strengths	Weaknesses
	<p>Good communication Frequent communication with members with a variety of ways (e.g., working groups, town halls, social media)</p> <p>Diverse and large membership Second largest section in the board of pharmacy practice (BPP) with diverse practice background, geographical representations, potential leaderships with good knowledge and skills to conduct research and projects</p> <p>Good governance Healthy finances with a clear strategic goals and implementation plan</p> <p>Inclusive culture Diverse representation on Executive Committee and working groups with an inclusive culture and productive mind set. A good brand recognition of the section with 50 years of long history supported by strong active leaderships</p> <p>Wide collaborations Collaboration between working groups within the section, as well as wider communications with YPG and IPSF</p>	<p>Limited membership representation Limited representations of teacher practitioners, pharmaceutical scientists, and academics from some underrepresented countries/regions</p> <p>Unclear identity and limited scope Section name may not represent all members to communicate with externals. The scope of the section should broaden to include educational policy. Strong harmonisation and alignment with One FIP strategy may have reduced the autonomy and unique selling points of the section</p> <p>Project organisation and recognition Limited practical support from FIP HQ for project organisation with slow PID approval process. Number of activities considering relatively small active members in working groups. Lack of recruitment process for project considering expertise of members. Lack of strong recognition of volunteers in working groups.</p> <p>Limited revenue stream Only relying on BPP subvention</p>
External Focus	Opportunities	Threats
	<p>More engagements with members and non-members After two years of no in-person FIP World Congress, the section needs rebuilding of membership. This can be done by broadening scope of membership (e.g., a broad range of educators, preceptors, adjunct/part-time faculty, Academic Institutional Membership (AIM) members), and promoting diverse and large number of members in social media, recognising active members more frequently, and using other languages for communication.</p> <p>More section projects Conducting more projects in the section, including connecting academics from different parts for exchanging ideas and proposing solutions, serving emerging countries who are transitioning curriculum to clinical focus, and leveraging remote learning to students and members.</p> <p>Redefining the identity of the section To embrace all educators since other structures in FIP are changing, the section needs to redefine itself considering 50th anniversary of the section establishment, including changing the name of the section.</p> <p>Further collaboration Further collaborations with BPS and other sections in BPP.</p> <p>Embracing FIP restructuring and Development goals (DGs) Embracing larger remit of education due to the changes in WDH structure. AcPS contributions to the achievements of DGs as educators’ potential to contribute in almost all DGs.</p>	<p>Unclear identity Placing AcPS in BPP and FIP Education (FIPed) and embracing educators, there is some confusions about identity of the section, a lack of clarity where the section is placed in FIP, and some overlaps of tasks and activities with other sections. There becomes less autonomy while aligning to One FIP strategy.</p> <p>Costs Membership fees are expensive for some regions – a threat for membership renewal and joining additional sections. There is a lack of financial support for the section, including travel and cost challenges to attend the World Congress.</p> <p>Governance and organisation Project governance is not managed well due to difficulty getting IRB for different institutions in some places, slow processing in FIP, and a lack of a dedicated staff like other constituencies in FIPed. This also leads to a lack of motivation and recognition.</p> <p>FIP changes Having an educational aspect in FIP, now two opposite Boards of BPP and BPS are outdated. Constant FIP restructuring would affect the activities and scopes of the section.</p>

AcPS vision

The Academic Pharmacy Section, as the premier international group empowering pharmaceutical educators, supports the vision of FIP and FIPed by advancing pharmaceutical education and training to meet societal needs for improved health through

medicines expertise for the purpose of transforming and advancing practice, education, and science to provide medicines expertise to meet present and future health needs in communities around the world. Initial and postgraduate/registration education and training for the pharmaceutical workforce, which is

the whole of the pharmacy-related workforce (e.g. registered pharmacist practitioners, pharmaceutical scientists, pharmacy technicians and other pharmacy support workforce cadres, preservice students/trainees) working in a diversity of settings (e.g. community, hospital, research and development, industry, military, regulatory, academia and other sectors) with a diversity of scope of practice.

AcPS mission

The Academic Pharmacy Section serves as an international source for networking, collaboration, policy, expertise/talent, development and inspiration for those involved in pharmaceutical education and training for the purpose of transforming and advancing practice, education and science to meet present and future health needs in communities around the world. Those involved in pharmaceutical education and training include pharmacy practitioners (pharmacists and support personnel), academics, trainees, pharmaceutical scientists, educators, preceptors, trainers, teacher practitioners, adjunct faculty, and those engaged in postgraduate lifelong learning. Additionally, the values statement was updated to match the proposed revisions to the vision and mission statements described earlier, and statements on policy and inclusivity were added to exhibit the desire for diversity, equity, and inclusivity in the section's approach. The changes are as follows, with the underlined sentences reflecting where the changes/updates occurred.

Values statements

1. Advance the quality of pharmaceutical education worldwide with a special focus on countries and regions around the world that are underrepresented in FIPed and the AcPS.
2. Improve the health and well-being of citizens of the world through the transformation of pharmaceutical education globally to meet societal needs.
3. Promote educational scholarship as a means to advance pharmaceutical education and disseminate best practices to colleagues around the world.
4. Advocate for an inclusive approach to the pharmacy and pharmaceutical education around the world.
5. Propose policies to support pharmacy and pharmaceutical education worldwide.

Finally, the strategic implementation goals were updated with proposed statements as follows: two additional goals were proposed to reflect the section's

progress, ongoing work, and new challenges being faced around the world. The first new goal focused on advocacy, policy, and global influence, while the second new goal focused on research and scholarship. The new goals and proposed objectives are in Table III.

The rest of the existing goals and objectives in the strategic implementation plan were updated to reflect the work already done and the impact of the AcPS in FIP and across the profession. Statements for the current strategic implementation plan were included as objectives or activities to strengthen the current plan. Under collaborations and communication, an objective focusing on providing consultation and additional expert contributions to WHO and the FIP development goals by utilising GPO/Atlas, data, intelligence, and reports to understand member or community needs and identify experts were added. Under the sustainability, membership and resources goal, the following objectives were added: 1) maintain yearly growth of the section, and 2) increase the proportion of potential members in underrepresented WHO regions annually. In addition, since the plan was well underway, words focusing on maintaining and managing resources were used instead of "developing" and "creating" to better reflect the current situation.

Furthermore, the goal focusing on educational programme design and assessment was updated to reflect educational activities and instructional design with an objective added to allow for the inclusion of quality education, micro-credentials and a focus on community and learner needs. Lastly, the goal statement focusing on educator and career development was updated to reflect the current thinking on "Who are we as a section?" and "who do we serve?" and an activity to identify and share best practices was added. The proposed goal of research and scholarship was elevated for more visibility and strategic positioning to attract pharmaceutical scientists to the section and serve the members better in the research domain.

Next steps for AcPS on the process

The section ExCo will go through an interactive process to incorporate feedback, refine the language of the updated strategic implementation plan, use this information to reorganise the focus of the working groups, assign working group leads and prepare to share the updated draft with section members for review prior to the upcoming business meeting scheduled for October 2022. After incorporating feedback, the strategic implementation plan will be finalised and presented for approval at the next section business meeting.

Table III: Proposed goals, statements, and objectives for addition to the AcPS strategic implementation plan

New Goal	Objectives
Advocacy, policy, and global influence Propose and advocate for policies to support and influence pharmacy and pharmaceutical education worldwide	Objective 1: Develop education policies to advance pharmacy education worldwide Objective 2: Propose policies to support pharmacy and pharmaceutical education worldwide Objective 3: Promote the implementation of education policies for global impact and execution Objective 4: Advocate for an inclusive approach to education transformation in WHO regions as appropriate
New Goal	Objectives
Research and scholarship Promote research and educational scholarship to advance pharmaceutical education, practice and science and disseminate best practices to colleagues around the world.	Objective 1: Provide seed grants to scientists around the world to foster research and collaboration Objective 2: Enhance the linkages between education, practice, and science experts Objective 3: Promote scholarship in pharmaceutical education Objective 4: Recognise excellence in research and scholarship of pharmaceutical education Objective 5: Annually/biannually publish a PEJ Supplement in service of our members

Discussion

This paper shared the step-by-step process the section ExCo used to update the existing strategic implementation plan using key forecasts and futuristic documents with input from stakeholders over the years. The past presidents described their hopes for the future of the AcPS under 3 themes: collaboration, faculty development, and membership. Several of the ExCo members were able to participate in and facilitate workshops under the UNITWIN project. During the workshops, the stakeholders identified several strengths, weaknesses, opportunities, and threats for their respective regions. FIP is uniquely positioned to collaborate with colleagues around the world on key development goals. Building on the work done by FIP constituencies, WDH, UNITWIN and the Nanjing Statements – Statements on Pharmacy and Pharmaceutical Sciences Education, the ExCo believes that the AcPS is uniquely positioned to assist colleagues around the world as they build academic capacity (FIP DG1), engage in continuing professional development (FIP DG9) or transform and advance their pharmacy programmes. The ExCo further believes these are key priorities as section leadership works together to advocate for and develop policies (FIP DG 13) that will help strengthen the workforce and capitalize on the identified opportunities in each region. The ExCo also believes that the section can grow together when members collaborate on research, teaching and practice initiatives that can improve health for all.

The authors believe the job of the president is to serve the section members in such a way that they can accomplish their local tasks using tools, resources and products harnessed through the section's global projects. Essentially, globally generated ideas become

relevant with local implementation. To do this, the ExCo must:

- Stay connected by listening to grassroots needs, aspirations, ideas, and challenges
- Brainstorm practical, innovative solutions for today while staying ready for the future
- Leverage the collective brilliance of members by engaging in active service through working groups
- Advocate for colleagues serving minority/underserved populations and regions
- Create systems and ways of working that will lay a strong foundation for the foreseeable future of academics around the world on teaching, research/scholarship, education, and service
- Share the section's work through scholarship and other forms of information dissemination
- Propose policies to further quality pharmacy education worldwide.

Ultimately, the goal is to leave the world a bit better than when encountered. The section plans to engage members in achieving the designed goals, objectives, and activities. This way, the section can discuss, innovate, serve, and go farther together.

Conclusion

The paper highlights the future of the profession, the future of pharmacists, the future of higher education, and the future of pharmacy education. It also focuses on the future direction of the AcPS as well as the process used by the current president and ExCo to update the current strategic implementation plan by

identifying goals, objectives, and priorities to address the question of “who are we?” and “who do we serve?” so the ExCo can assist section members as they tackle the educational challenges of our time. The paper also provides an opportunity to reflect on the current activities conducted by the section through working groups and propose future direction for the section by refreshing the strategic implementation plan.

Acknowledgement

The authors would like to thank the ExCo members who contributed significantly to this work: John Pieper, Arijana Meštrović, Carl Schneider, Rula Darwish, Aukje Mantel-Teeuwisse, Abdikarim Abdi, Martin Henman, Arinola Joda, and Mansi Doshi. We would also like to thank Alison Ekwere and Nilhan Uzman for their contribution to the SWOT analysis.

References

- Deloitte Insights. (2020). Future of pharmacy. Disruption creates transformative opportunities and challenges. Retrieved 18 July 2022, from: <https://www2.deloitte.com/us/en/pages/life-sciences-and-health-care/articles/future-of-pharmacy-disruption-opportunities-challenges.html>
- DiPiro, J.T., Carmichael, J. M., Johnson, V.B., Daftary, M.N., Martinez, L., Wiest, M.D., Patel, B., Woller, T., Devender, E.A.V., Shane, R., & Cunningham, F. (2022). ASHP Foundation pharmacy forecast 2022: Strategic planning guidance for pharmacy departments in hospitals and health systems. *American Journal of Health-Systems Pharmacy*. 79(2),23-51. <https://doi.org/10.1093/ajhp/zxab355>
- International Pharmaceutical Federation. (2016). Global Vision for Education and Workforce. Retrieved 4 August 2022, from <https://www.fip.org/files/content/pharmacy-education/fip-education/global-vision-for-education.pdf>
- International Pharmaceutical Federation. (2016). Pharmaceutical Workforce Development Goals. Retrieved 4 August 2022, from <https://www.fip.org/files/content/pharmacy-education/fip-education/pwdg.pdf>
- International Pharmaceutical Federation. (2017). Nanjing Statements- Statements on Pharmacy and Pharmaceutical Sciences Education. Retrieved 3 August 2022, from <https://www.fip.org/files/content/pharmacy-education/fip-education/nanjing-statements.pdf>
- International Pharmaceutical Federation. (2019). One FIP - Creating the vision: International Pharmaceutical Federation annual report 2019. Retrieved 18 July 2022, from https://www.fip.org/files/content/publications/2020/Annual_Report2019_FINAL-digital.pdf
- International Pharmaceutical Federation. (2022). Academic Pharmacy Section. Retrieved 18 July 2022, from <https://www.fip.org/academic-pharmacy>
- International Pharmaceutical Federation. (2022). Academic Pharmacy Section Strategic Plan, 2019-2024. Retrieved 4 August 2022, from https://www.fip.org/files/fip/AcPS/AcPS_Approved_Strategic_Implementation_Plan_23_September_2019_final.pdf
- International Pharmaceutical Federation. (2022, March 1). FIP UNESCO-UNITWIN Programme. Retrieved 18 July 2022, from: <https://www.fip.org/fip-unesco-unitwin-programme>
- Jordan, D., Duggan, C., Peña, C., Lourenço, L., Pauletti, G., Altieri, R., McKinnon, R., Sinclair, P., Aslani, P., Lacava, C., Gharat, M., Shammas, S., Soni, A., & Söderlund, L.-Å. (2021). Global call to action for advancing pharmaceutical education. International Pharmaceutical Federation. Retrieved 18 July 2022, from <https://www.fip.org/file/5091>
- Levine, A., & Van Pelt, S. 2021. The great upheaval: Higher education's past, present and uncertain future. Johns Hopkins Press
- Pelletier, K., Brown, M., Brooks, D. C., McCormack, M., Reeves, J., & Arbino, N. (2021, April 26). 2021 Educause Horizon Report®: Teaching and learning edition. 2021 EDUCAUSE Horizon Report® | Teaching and Learning Edition. Retrieved 18 July 2022, from <https://library.educause.edu/resources/2021/4/2021-educause-horizon-report-teaching-and-learning-edition>
- Van Antwerp, G., Bhatt, V., Myers, G., & Elsner, N. (2021, December 1). The pharmacist of the future. Unlocking the profession's potential to improve patient care. Deloitte Insights. Retrieved 18 July 2022, from <https://www2.deloitte.com/us/en/insights/industry/health-care/future-of-pharmacists.html>