

PROGRAMME DESCRIPTION

A required course in leadership, entrepreneurship, and administration in pharmacy

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Abstract

Context: Worldwide, there is growing interest in equipping pharmacy graduates with the requisite skills to assume responsibilities related to management and leadership in the profession. To meet this need, the required course “Leadership, Entrepreneurship, and Administration in Pharmacy” is provided as a culminating experience for pharmacy students.

Description of course: In this course, students learn concepts related to management, leadership, and entrepreneurship and complete assignments including financial statement exercises, human resources management simulations, personal leadership development plans, and business plan projects with professional poster presentations. The course in its current form has been offered four times to 541 students. **Evaluation:** Student evaluations (n=214) show the course is well-received and provides opportunities to develop knowledge and skills not covered previously. As the pharmacy profession is constantly evolving, students need a strong foundation in management, leadership, and entrepreneurship. Sharing experiences from this course will aid faculty at other institutions wanting to include similar topics in their curriculum.

Introduction

As the role of the pharmacist continues to evolve to meet the ever-changing needs of healthcare systems around the world, the importance of developing pharmacy students’ leadership and managerial skills has been recognised (Nissen & Singleton, 2018). The concepts of “leader” and “manager” were included in the World Health Organization’s (WHO) “seven-star pharmacist” model (WHO, 1997), which was adopted by the Federation Internationale Pharmaceutique/International Pharmaceutical Federation (FIP) in 2000 (FIP, 2000). Furthermore, the Nanjing Statements on Pharmacy and Pharmaceutical Sciences (FIP, 2017), a global consensus of 37 countries’ envisioned future for pharmacy education, included Cluster 2 and Cluster 4, highlighting key components in these areas for pharmacy education (Table I). Schools worldwide are striving to graduate “practice-ready” pharmacists with

a broad range of professional and interpersonal skills to enable them to assume roles in management and leadership upon graduation (Nissen & Singleton, 2018; Nouri & Ahman Hassali, 2018). Curricula are being redesigned to emphasise managerial skills, leadership, and innovation, and there is interest among faculty to incorporate evidence-based strategies to further develop these areas in pharmacy education. As a result, there have been calls for dissemination of descriptions of how these topics are taught so that faculty at other institutions can learn from the examples and implement similar practices if interested (Brazeau, 2013; Janke *et al.*, 2016; Mospan, 2017). Therefore, the purpose of this paper is to report on the structure and content of a required course titled “Leadership, Entrepreneurship, and Administration in Pharmacy” (LEAP) taught at the Ohio Northern University (ONU) College of Pharmacy located in the United States (U.S.).

Table I: Educational outcomes relevant to leadership and management (Medina et al., 2013; FIP, 2017)

Source	Component	Description
Nanjing Statements on Pharmacy and Pharmaceutical Sciences	Cluster 2: Professional Skills Mix	“Besides the basic sciences, clinical, social and administrative sciences are fundamental when they support learning about patients and their use of medicines.”
Nanjing Statements on Pharmacy and Pharmaceutical Sciences	Cluster 4: Foundation Training and Leadership	“Foundation training includes the process of education and leadership development for students and new graduates in pharmacy and the pharmaceutical sciences with a priority on developing the next generation of clinical, scientific, academic and professional leaders.”
Center for the Advancement of Pharmacy Education	Domain 2	Medication use systems management (Manager) - “Manage patient healthcare needs using human, financial, technological, and physical resources to optimize the safety and efficacy of medication use systems.”
Center for the Advancement of Pharmacy Education	Domain 4	Self-awareness (Self-aware) – “Examine and reflect on personal knowledge, skills, abilities, beliefs, biases, motivation, and emotions that could enhance or limit personal and professional growth.”
		Leadership (Leader) – “Demonstrate responsibility for creating and achieving shared goals, regardless of position.”
		Innovation and Entrepreneurship (Innovator) – “Engage in innovative activities by using creative thinking to envision better ways of accomplishing professional goals.”

Description of course

ONU has a six-year, direct entry Doctor of Pharmacy (Pharm.D.) programme. The courses taught in the fourth and fifth year of the programme are in an integrated, interdisciplinary, modular format, where students focus on one main subject area at a time (Pearson & Hubball, 2012). The LEAP course is a 6-credit hour module taught in the spring semester of the fifth year. Since it is a required course, all students enrolled in the Pharm.D. programme benefit from the experiences. The module is team-taught by faculty from the College of Pharmacy as well as the College of Business. This interdisciplinary approach, along with the incorporation of a number of guest speakers from varied backgrounds and practice sites, exposes the students to unique perspectives and provides informal opportunities for networking. The five-week module is grouped into three main units: Unit 1: Pharmacists as Part of the U.S. Healthcare System; Unit 2: Pharmacists as Managers; and Unit 3: Pharmacists as Leaders.

Some introductory topics relevant to management and leadership have been covered in earlier years of the Pharm.D. programme, purposefully infused throughout the curricula with planned redundancies. The LEAP module is the culmination meant to equip student pharmacists with knowledge and skills to succeed in the managerial, entrepreneurial, and leadership aspects of the profession. The course utilises a problem-solving approach and incorporates active learning strategies discussed below to facilitate student development.

Given the course is offered in the U.S., it was designed to also meet the Center for the Advancement of Pharmacy Education (CAPE) Educational Outcomes (Medina et al., 2013) (Table I), which serve as the foundation for the Accreditation Council for Pharmacy Education (ACPE) Standards (ACPE, 2015). The course was further developed with feedback obtained from key informant interviews with practising pharmacists working as district managers, pharmacy directors, and in other fields to solicit information on expectations of new graduates in these areas. Learning objectives for the course are shown in Table II.

Unit 1: Pharmacists as Part of the U.S. Healthcare System

The first week of the module is dedicated to discussing how pharmacists are integrated into the U.S. healthcare system and how the system impacts pharmacists' practice. Topics include American philosophy and politics in healthcare, private and public third-party payers, pharmacy benefit managers, formulary management, pharmacist reimbursement models, healthcare quality and outcomes, healthcare reform, international healthcare systems, and pharmacy law. Every other year, the students participate in a recitation exercise simulating a mock board of pharmacy hearing regarding pharmacist addiction (Parker et al., 2018). A complete description of this unit is outside of the scope of this paper as it may not be of interest to international readers; however, more detailed information can be obtained by contacting the authors.

Table II: Learning objectives for the required course “Leadership, Entrepreneurship, and Administration in Pharmacy” (LEAP)

Unit	LO #	LO Description	Assessment Method							
			Recitation Exercise	EQ Action Plan	Leadership Development Prework	Leadership Development Plan	Written CV	Business Plan Project	Exam	
Unit 1: Pharmacists as Part of the U.S. Healthcare System	1.1	Describe issues of contemporary pharmacy practice, including emerging and unique roles for pharmacists on the healthcare team and in provision of population-based care							●	●
	1.2	Summarise the social, political, and economic factors of the U.S. healthcare delivery system	●							●
	1.3	Develop new ideas and approaches to improve quality or overcome barriers to advance the profession							●	●
	1.4	Compare and contrast the U.S. healthcare delivery system with selected countries	●							●
	1.5	Determine the legal basis of pharmacy practice, including pharmacists’ responsibilities and limits under the law	●							●
Unit 2: Pharmacists as Managers	2.1	Apply management principles (planning, organising, directing, and controlling resources) to pharmacy practice settings	●						●	●
	2.2	Describe the drug procurement process and inventory control; manage inventory costs and inventory levels or order points								●
	2.3	Identify cash flow problems and apply solutions to address	●							●
	2.4	Demonstrate an understanding of marketing principles and basic accounting principles						●	●	●
	2.5	Describe basic finance terms and analyse a financial statement	●							●
	2.6	Develop operational and financial justification for a capital pharmacy project	●							●
	2.7	List implications related to drug distribution including specialty pharmaceuticals, drug shortages, counterfeit drugs, and diversion								●
	2.8	Describe management of staff within the practice setting, including pharmacists, technicians, and other supportive personnel	●						●	●
	2.9	Describe entrepreneurial opportunities for pharmacists							●	●
	2.10	Manage and improve the medication-use process, including drug safety and pharmacovigilance								●
	2.11	Complete a business plan for a new pharmacy service to improve population health							●	
	2.12	Perform a SWOT analysis							●	●
	2.13	Design mission and goals for an innovative clinical service programme							●	
	2.14	Apply management and financial concepts in an interactive, problem-solving environment	●							●

Table II: Learning objectives for the required course “Leadership, Entrepreneurship, and Administration in Pharmacy” (LEAP) (continued)

Unit	LO #	LO Description	Assessment Method							
			Recitation Exercise	EQ Action Plan	Leadership Development Prework	Leadership Development Plan	Written CV	Business Plan Project	Exam	
	2.15	Demonstrate creative decision-making when confronted with novel problems or challenges	●						●	
	2.16	Design and present a professional poster							●	
Unit 3: Pharmacists as Leaders	3.1	Distinguish leadership from management								●
	3.2	Describe the characteristics, behaviours, and practices of effective leaders								●
	3.3	Develop professional self-awareness and leadership skills, including self-assessment of emotional intelligence and strengths		●	●		●			
	3.4	Identify, create, implement, evaluate, and modify plans for personal and professional development for the purpose of individual growth			●		●			
	3.5	Describe leadership concepts relating to organisational behaviour and their impact on creating high-performing organisations								●
	3.6	Describe the determinants and elements of organisational structure and its impact on an organisation's performance								●
	3.7	Analyse and apply leadership theories and styles and the effects on groups and teams								●
	3.8	Describe how organisational cultures are formed and sustained, and the benefits and liabilities of strong organisational cultures and subcultures								●
	3.9	Explain how leadership theories, frameworks, processes, and paradigms shape organisations and society								●
	3.10	Analyse bases of power and influence tactics and the impact on organisational objectives								●
	3.11	Describe ways to drive transformational change within an organisation								●
	3.12	Create a professional curriculum vitae (CV)	●					●		
	3.13	Evaluate education, qualifications, and experiences that could enhance professional growth					●	●		
	3.14	Apply professional ethics to the practice of pharmacy	●							

Abbreviations: CV = Curriculum Vitae; EQ = Emotional Intelligence; LO = Learning Objective; SWOT = Strengths, Weakness, Opportunities, and Threats

Table III: Content taught in the “Pharmacists as Managers” unit of the course

Topic area	Specific content covered [LO]*
Basic management principles	<ul style="list-style-type: none"> • Five functions of management (planning, organising, staffing, directing, controlling) [2.1, 2.11] • Three core managerial types (top, middle, line) [2.1]
Strategic planning	<ul style="list-style-type: none"> • Time horizons (short-term, mid-term, long-term) [2.1] • Barriers to planning [2.1] • Types of plans (single-use, standing, contingency, crisis management) [2.1]
Assessing business needs	<ul style="list-style-type: none"> • SWOT (strengths, weaknesses, opportunities, and threats) analysis [2.1, 2.11, 2.12] • PEST (political, economic, social, and technological) analysis [2.1]
Types of strategies	<ul style="list-style-type: none"> • Position [2.4] • Leverage [2.4] • Opportunity [2.4]
Planning process and methods	<ul style="list-style-type: none"> • Goal/objective setting [2.1, 2.13] • Management by objectives [2.1] • Gantt charts [2.1] • Scheduling [2.1]
Problem-solving	<ul style="list-style-type: none"> • Five steps of problem-solving (identify the problem, identify the root cause, seek alternative solutions, select appropriate solutions, implement solutions, and check impact) [2.11, 2.14]
Failure	<ul style="list-style-type: none"> • Reasons for failure [2.15] • Using failures to an advantage [2.15] • Loss versus restoration coping skills [2.15]
Organisational structures	<ul style="list-style-type: none"> • “Tall” vs. “fat” organisations [2.1]
Business communication	<ul style="list-style-type: none"> • “Vertical” vs. “horizontal” communication [2.1]
Control	<ul style="list-style-type: none"> • Activities [2.1] • Measurement methods [2.1, 2.5]
Life of a venture	<ul style="list-style-type: none"> • Development, startup, growth, stabilisation, innovation, or decline [2.1]
Managerial skills	<ul style="list-style-type: none"> • Marketing [2.4] • Advertising and promotion [2.4] • Inventory management [2.1] • Pricing goods and services [2.2]
Financial management	<ul style="list-style-type: none"> • Three core statements (income, balance sheet, cash flow) [2.3, 2.5] • Statement analysis methods (vertical, horizontal, ratio) [2.5] • Financial planning [2.1, 2.5, 2.6, 2.14] • Time value of money [2.1, 2.5] • Sales forecasting (judgmental, time-series, casual models) and when to use them, evaluate them, and make changes to plans based on results [2.1, 2.5, 2.14] • How forecasting and planning is used to create pro-forma income statements, balance sheets, and cash flow projections [2.1, 2.5, 2.14] • Return on investment [2.1, 2.5, 2.11, 2.14] • Break-even analysis [2.1, 2.5, 2.11, 2.14] • Income statements [2.1, 2.5, 2.14]
Human resources	<ul style="list-style-type: none"> • General human resources concepts [2.8] • Challenges in human resources [2.8] • Compensation packages [2.8] • Recruitment [2.8] • Interviews [2.8] • Team dynamics [2.8] • Performance appraisals [2.8]

Table III: Content taught in the “Pharmacists as Managers” unit of the course (continued)

Topic area	Specific content covered [LO]*
General pharmacy management principles	<ul style="list-style-type: none"> • Inventory management [2.2] • Pricing goods and services [2.2] • Marketing, advertising, and promotion [2.4] • Asset protection, safety, and pharmacy security [2.1]
Community pharmacy ownership options	<ul style="list-style-type: none"> • Available ownership options [2.9] • Advantages and disadvantages of being a pharmacy owner [2.9] • Ways to plan for ownership [2.1, 2.9]
Management of health-system and hospital pharmacy departments	<ul style="list-style-type: none"> • American Society of Health-System Pharmacists’ key initiatives [2.1] • Primary responsibilities of a health-system pharmacy administrator (budgeting, human resource management, project management, daily operations, regulatory compliance) [2.1, 2.2, 2.8]
Medication use systems	<ul style="list-style-type: none"> • Common causes of preventable medication errors [2.10] • Key concepts in medication error prevention [2.10] • Just culture [2.10] • Pharmacovigilance and risk minimisation plans [2.10] • Specialty pharmaceuticals [2.7] • General aspects of drug supply and drug shortages [2.7] • Pharmacists’ role in the supply chain [2.7] • Influencers in the supply chain, from health-system/hospital and retail/mail order perspectives [2.7]
Entrepreneurship and intrapreneurship	<ul style="list-style-type: none"> • What is entrepreneurship [2.9] • Traits of entrepreneurs [2.9] • Misconceptions about entrepreneurs [2.9] • How to think entrepreneurially [2.9, 2.11, 2.14] • Resources for entrepreneurship [2.9] • Being an intrapreneur in healthcare organisations [2.9, 2.11, 2.14]

*LO indicates the learning objective(s) addressed by the topic area; numbers correspond to the numbered learning objectives in Table II

Unit 2: Pharmacists as Managers

The second unit of the module is 2.5 weeks and covers roles and responsibilities for pharmacists as managers. This unit broadly consists of the business aspects of pharmacy management, including managing the pharmacy (e.g. inventory, staff, asset protection, safety, pharmacy security), medication use systems (e.g. medication safety, speciality pharmaceuticals), and entrepreneurship (e.g. developing new pharmacy services). Table III lists the topic areas and specific content covered in this unit of the course.

Teaching is interdisciplinary, using pharmacy faculty, business school faculty, staff members from the University’s human resources department, and additional practising pharmacy managers from the community and institutional settings. For instance, for human resources, University human resources personnel provide general content on human resources, its history, challenges, compensation packages, and recruitment; pharmacy faculty and practising pharmacy managers then provide the

context of how these concepts apply in a pharmacy, providing information about interviews, team dynamics, and performance appraisals.

Content is taught using live lessons and applied to their own culminating project creating a business plan for a new pharmacy service, detailed below. Thus, for instance, as students learn about analysing business opportunities using the Strengths, Weakness, Opportunities, and Threats (SWOT) model, they conduct their own SWOT analysis for their business plan. Small checkpoints are used to give students practice in applying the principles from class.

Several factual or fun examples are used to illustrate concepts. For instance, the time value of money is taught with an example using 1950’s McDonald’s French fry prices, predicting what French fries will cost 70 years from 1950 using the time value of money equation. This in-class exercise gets the price of French fries 70 years from 1950 within a few pennies of today’s prices and helps to show the students that the process works and therefore can be trusted to predict the

future value of money. The use of return-on-investment (ROI) is taught via a hands-on recitation exercise where students are presented with math story problems involving a pizzeria's dilemma regarding purchasing a newer and faster pizza oven to solve their low income. A pizzeria is a restaurant that makes and sells pizza, an Italian handheld food consisting of flattened bread dough with savoury toppings, typically including tomato sauce, cheese, meats, and vegetables. The students calculate the ROI for this proposed purchase, which shows to be a good solution, but need to dig deeper than the results of ROI. The end result is that a newer and faster pizza oven will not improve income as the problem is a lack of customers. This exercise is an important critical thinking exercise as it shows that financial analysis must be looked at from multiple viewpoints and not just the results of an equation.

Another example of the hands-on method used in this course involves break-even analysis. Students learn this concept in a recitation exercise where they are presented with math story problems and perform a break-even analysis for a pizzeria and a CD-ROM manufacturer. This exercise shows the students the varied uses of the basic break-even equation to solve real-world business financial needs. The students then take the skills learned through the ROI and break-even exercises applied in other fields and the information on strategic planning, marketing, and promotion to create a business plan assignment for a new pharmacy service (detailed below). The students are better able to grasp the purpose and use of the theories discussed in lectures and activities when they are applied to problems that directly impact the students' business plan project.

Income statements are also covered employing an engaging hands-on approach using a fourth-grade lemonade stand income statement recitation exercise. A lemonade stand is an informal business typically operated by children selling a drink made from lemon juice and sweetened water to thirsty customers during the warmest months of the year. The use of such a low-level assignment is paramount as it shows the ease of creating and understanding an income statement. The students are then shown real income statements from various pharmaceutical companies and compared side-by-side to the lemonade stand income statement so that the students can see that those income statements are at their core the same as a lemonade stand, only with larger numbers and more line items under the major categories.

Role-playing is another active-learning strategy employed in this course for the business content. One example of this is the "Who's the Boss?" recitation

exercise. Students, in groups of three to five, are given one of three scenarios: "The Hire," "The Fire," or "The Evaluation." Supplementary materials, including fictional applicants' curricula vitae (CV), performance appraisals, and job descriptions, are available for review. The students are given approximately 30 minutes to discuss how they would handle the situation in their small groups and role-play the interactions, and then the larger class reconvenes for about 20 minutes to go through an example of each scenario. Feedback on how they handled the situation is provided by the instructors.

Throughout the managerial-related topics, examples germane to both community pharmacy and institutional pharmacy practice are shared. For example, general aspects of the drug supply, pharmacists' role in the supply chain, and various influencers in the supply chain from both a health system/hospital and retail/mail order perspective are discussed. The interactive platform Poll Everywhere (2020) is used to engage students during this session. In addition, there are sessions devoted to the management of health-system and hospital pharmacy departments. Main components include initiatives from the American Society of Health-System Pharmacists (ASHP) to advance the practice of pharmacy within health systems and the key responsibilities of a health-system pharmacy administrator. The students also have to complete a hands-on recitation exercise focused on a pharmacy capital expenditure. The scenario involves a fictional community hospital's transition from a centralised pharmacy dispensing model to a fully decentralised automated dispensing cabinet model. The students are provided with data and use the ROI analysis they learned to determine whether the hospital should purchase or lease the automated dispensing cabinets.

Within this section of the course, student learning is assessed in several different ways. Students receive graded feedback on their assignments through standardised rubrics completed electronically by the faculty providing the content using an online learning management system. Concepts are also tested in the weekly summative exams using a primarily multiple-choice question format. The exams are administered via a secure online testing software programme, which generates reports for students based on their performance. The students also synthesise all of the information covered in a capstone business plan assignment for a new pharmacy service, also graded via a standardised rubric.

For the business plan assignment, students are asked to specify their preference to create a business plan for a new pharmacy service in one of four general

pharmacy practice sites: community/retail pharmacy, hospital/health-system pharmacy, ambulatory care pharmacy, or worksite wellness programme. Based on their preferences, students are randomly assigned to a group focused on either of their first or second choices. Group sizes generally range from five to seven students per team. The students are provided with background materials (McDonough, 2007; Ahlquist *et al.*, 2010) as well as in-person sessions to lead them through the steps of creating a business plan. In addition, each group has the opportunity to meet with the instructor during weekly office hours dedicated to the project. Because of the entrepreneurial nature of the project, the ideas and variables needed to meet the objectives of the business plan are too extensive to provide one unifying form or teaching protocol to the entire class, therefore dedicated meetings outside of class time enable the student groups to gain feedback and perspective from the faculty on their ideas and plan.

Students use population health data to identify needs for specific populations to determine what new pharmacy service they want to propose. They go through five major steps to create their proposal: ideation, strategic planning, financial analysis and planning, implementation planning, and evaluation planning. They are required to create a mission statement and at least three SMART (specific, measurable, achievable, relevant, and time-based) goals for the service. They also must perform a market analysis that reviews the target market, market trends, expected demand long-term, and SWOT analysis. A marketing/promotion strategy and plans are also developed. Students also address operations, staffing, and resources needed and calculate the break-even analysis and ROI for the service. They must also consider the evaluation and implementation plan for the new service, with at least four monitoring metrics for evaluation and a timeline with at least five goals or milestones for implementation.

Each group creates a professional poster that highlights their business plan proposal. At the start of the project, students are given a poster template (Appendix A) and a grading rubric (Appendix B). Students are told that the poster template is merely a guide to the required headings on their final poster; these headings match the fields on the first page of the grading rubric. Groups are encouraged to use colours and be creative in their final poster, as long as they include the main headings specified. Hence, most groups create unique and visually stunning posters. Students present their results during an in-person poster session simulating a professional conference. Each team is evaluated via the rubric by two individuals with a background in the area of focus (community, health-system, ambulatory care, or worksite wellness); for consistency, one is an on-

campus faculty member and the other an invited off-campus expert. The first page of the rubric evaluates the contents and the quality of the business plan they developed; the second page evaluates students' professionalism, presentation skills, and poster organisation. At the end of the poster session, the instructors normalise the scores to account for any outliers (e.g. an individual who consistently scored teams significantly lower or higher) so that a team is not put at a disadvantage or advantage solely due to their evaluator.

Unit 3: Pharmacists as Leaders

The remaining 1.5 weeks of the course are dedicated to exploring pharmacists as leaders, both formally and informally, in the workplace and society. Practical career strategies and continuous professional development are introduced. Ethics is also reinforced. This section of the course follows guidance for Pharm.D. leadership development competencies (Janke *et al.*, 2013). Table IV lists the topic areas and specific content covered in this unit of the course.

This section of the course first flows from reinforcing baseline leadership knowledge and correcting misinformation (e.g., "What is leadership?"), to personal leadership commitment (e.g., "Who am I as a leader?"), and then to personal leadership development planning (Janke *et al.*, 2013). Additionally, students can attend several sessions on professional development and practical career planning topics. Content is taught using live lessons.

Strategies used to enhance education regarding leadership in this unit include well-known and faculty personal stories to illustrate concepts and processes, examples plucked directly from students' lives and student personal reflection. For instance, prior to discussing leadership, students are asked to think of someone they view as a leader and to describe the traits that this person possesses. This information is discussed and recorded for the entire class, providing fodder for the definition of leadership, discussion of non-positional leadership, and the characteristics of exemplary leadership. As students learn conceptual material about leadership, they are asked to apply it to their own experiences in student organisations, employment experiences, and experiential education with the intent of using actual experiences with leadership and leading change to "make it real" for students. This process also allows transformation and connection between the conceptual and practical. Student reflection drives a large portion of this section, namely around perceived use of exemplary leadership practices, preferred leadership style, and personal characteristics related to leadership.

Table IV: Content taught in the “Pharmacists as Leaders” unit of the course

Topic area	Specific content covered [LO]*
“What is leadership?”	<ul style="list-style-type: none"> • Definition of leadership [1.1, 3.1, 3.2] • Importance of leadership in pharmacy [1.1] • “Big L” and “little l” leadership (positional vs. non-positional leadership) [3.2] • Distinction between leadership and management [3.1] • Characteristics and practices of effective leaders (Kouzes & Posner, 2014) [3.2, 3.13] • Leadership styles (democratic, autocratic, bureaucratic, laissez-faire, servant, transformational, charismatic, and transactional) [3.2, 3.7]
Self-awareness as leader	<ul style="list-style-type: none"> • Gallup StrengthsFinder assessment (Aspund <i>et al.</i>, 2014; Rath, 2007) [3.3, 3.4] • Emotional intelligence (Goleman, 1997; Larka, 2011) [3.3, 3.4] • DISC (Dominance, Influence, Steadiness and Compliance) personality traits (Bradberry & Greaves, 2009) [3.3, 3.4]
Leadership skill development	<ul style="list-style-type: none"> • Creating a leadership development plan [3.4] • Leading adaptive change processes (Kotter, 1995; Kotter & Rathgeber, 2005; Kotter & Cohen, 2002) [3.11] • Teamwork and five dysfunctions of a team (Lencioni, 2002) [3.6, 3.7] • Conflict resolution [3.5, 3.7] • Organisational culture [3.5, 3.6, 3.8, 3.9, 3.10]
Professional development and practical career planning	<ul style="list-style-type: none"> • Curriculum vitae development [3.12] • Interview skill development [3.13] • Writing letters of intent [3.13] • Continuous professional development process [3.3., 3.13]

*LO indicates the learning objective(s) addressed by the topic area; numbers correspond to the numbered learning objectives in Table II

One aspect of this is demonstrating self-awareness in leadership. Gallup’s StrengthsFinder assessment (Rath, 2007; Asplund *et al.*, 2014) is one tool used to understand self-awareness in leadership. Students take the assessment prior to class to learn their own Signature Themes of Talent (STs) and are asked to reflect on their STs and recent situational awareness of their STs. The class session extensively discusses how to recognise STs in action, how to use STs with skills and knowledge to find and grow their strengths, and how their unique combination of STs creates who they are and can be used to find (and then do) the things they love in their career. The instructors also convey how students can use their strengths to promote themselves on the job market and during interviews. Other ways that personal leadership is explored is through the concept of emotional intelligence (Goleman, 1997; Larka, 2011) and DISC (Dominance, Influence, Steadiness, and Compliance) personality traits (Bradberry & Greaves, 2009). Each student independently completes a free, online tool that calculates an emotional intelligence (EQ) score (Mind Tools, 2020). From this, students complete an EQ Action Plan during a recitation session (Appendix C). They also complete a free, online DISC assessment to reveal their personality styles and preferences (123 Test, 2020).

Both real-world opportunities for leadership and instructors’ past experiences with leadership provide

extensive discussion points. When discussing leading adaptive change processes (Kotter, 1995; Kotter & Cohen, 2002; Kotter & Rathgeber, 2005), the instructors ask students for examples of changes that could be made within the College of Pharmacy from the student perspective (such as the exam review process). Hearing student ideas allows for two main benefits: 1) distinguishes between technical and adaptive change, and 2) changes relevant to students’ current experience pique interest in learning and applying the process of how to influence change. Instructors use their own experiences to discuss the use and development of strengths, application of various leadership styles, leadership faux pas and mistakes, prior gaps in emotional intelligence, and how a development plan has shaped their careers.

This portion of the course also contains an ethics exercise utilising real-life professional situations that create ethical dilemmas for pharmacists (Dessing, 2000). In a recitation exercise, students are given several scenarios with the option to choose one to address. They then work in groups to establish a solution to the scenario. At the end of the exercise, each scenario is presented by a different group of students, where they explain their decision-making process, solution, lessons learned, and consequences of their decision. This ethics exercise directs the students to analyse their decision-making processes when faced with situations that challenge morals,

belief systems, and legal boundaries, as well as the consequences of their decision in practical, realistic pharmacy situations. Discussion on how their process and solution exhibit a particular leadership style is also discussed in summary.

The culminating project within this section of the course involves the creation of a leadership development plan. Students first complete the "Developing a Plan for Leadership Development Prework" worksheet (Appendix D) outside of class. Students then develop their plans using a leadership development plan template (Appendix E) during a class session. It first focuses on personal factors like emotional intelligence and growing strengths, then requires them to reflect on their own leadership styles and skills, and concludes with them identifying a leadership mentor and a plan for developing as a leader. Instructors provide feedback and help students complete their plans in class.

This unit of the module is assessed in several different ways. Faculty responsible for the content provide graded feedback on the assignments using standardised rubrics through the online learning management system. Students are also tested in the weekly online summative exams using a primarily multiple-choice question format. The questions test knowledge on traits of exemplary leaders, five dysfunctions, leadership knowledge,

emotional intelligence, and leading adaptive change process, and students receive a report on their performance via the testing software programme. However, a limitation of this assessment is that most of the multiple-choice questions only get at the concepts, but not the practice, of leadership. This gap is an area that requires future work.

Evaluation

Since the most recent U.S. pharmacy educational standards emphasising leadership were implemented (ACPE, 2015), this course has been offered four times to a total of 541 students. Of those, 214 students completed voluntary, anonymous course evaluations. The response rate was 39.6%, consistent with the response rate seen for other courses in the College of Pharmacy utilising an online, out-of-class course evaluation survey.

A summary of the quantitative data is shown in Table V. Overall, students reported high satisfaction with the course structure and delivery. The mean for each of the five questions was calculated as ≥ 4 , which indicates that the majority of students "agreed" or "strongly agreed" that they acquired proper skill sets and the course was well-executed.

Table V: Course evaluation data from students (n=214)

Question	SA	A	N	D	SD	Missing	Mean
Learning outcomes were clearly explained at the outset of the course.	109	97	5	1	0	2	4.4
The learning outcomes were appropriate for a course of its level.	111	91	8	2	0	2	4.43
The module was designed to foster learning of the course material.	103	89	19	1	0	2	4.35
The module provided me with an important skill set needed for further studies in this field.	101	94	12	5	0	2	4.38
Overall, the course was well-organised.	85	94	18	8	3	6	4.05

Abbreviation: [SA] Strongly Agree=5; [A] Agree=4; [N] Neutral=3; [D] Disagree=2; [SD] Strongly Disagree=1

A thematic qualitative analysis was performed on the open-ended responses that students submitted as part of the evaluations. While reading through the responses, keywords and phrases were manually identified and categorised in groups based on similar thoughts, ideas, or experiences. These categories were then labelled and coded, and the responses were re-read to ensure that each was associated with the correct code. Through this thematic analysis, quotes

representative of the feedback received for each theme were selected. Table VI details the common themes that emerged, with exemplar quotes. Based on the quantitative and qualitative data received to date, the instructors believe that this course is well-received by students and provides them with opportunities to develop knowledge and skills not covered elsewhere in the curriculum.

Table VI: Common themes and exemplar quotes from open-ended student comments on course evaluations

Theme	Exemplar quotes
Improved awareness and appreciation of course topics	<p>"I think that this material is undervalued and that while it may not be clinical knowledge, it provided me with a strong skill set I will use in the future."</p> <p>"I did not know what to expect from this course because I have never been very good with business topics, however I really enjoyed this course!"</p> <p>"Thank you for helping me realize my passion for Pharmacy Administration!"</p> <p>"Sometimes difficult to figure out what the main points are. This is really the first time we have seen most of this, so less detail and more real-life application would be helpful."</p>
Variety of hands-on assignments	<p>"The course was very well-coordinated. There were various activities to avoid the monotony of simply attending class."</p> <p>"Overall, the course was very organized. The activities were very beneficial for applying the material."</p> <p>"I really enjoyed the interactive activities we did. I felt like I learned a lot from these that can't be taught in the classroom."</p> <p>"Breakouts [recitation exercises] were sometimes inconsistent and some instructors did not convey their expectations clearly from the beginning so it made it hard to follow."</p>
Interdisciplinary faculty and guest speakers	<p>"The professors were all strong in their areas of expertise. They all brought along their own life lessons as well as other examples to help get the material across."</p> <p>"Many guest lectures and wide variety of topics kept it interesting."</p> <p>"I really appreciate guest lecturers, but some did not seem to know their time constraints. Many guests ran over their time, which caused issues for some students who had work or other commitments"</p>
Business plan project	<p>"The business plan project was awesome!!!! Although it was difficult with the 'free reign' characteristic (getting to choose our own interests, no prompt given), it was important to have a group of students who were all interested in the same topic (institutional, ambulatory care, community, etc.) As a group, we were all really proud to call our final project ours and share it with others!"</p> <p>"The business plans were a lot of work, but were a great opportunity and experience."</p> <p>"I didn't think I would enjoy the business project, but it ended up being a really great experience. My group really came together and enjoyed working with each other. We were very proud of our business plan."</p> <p>"I felt like the directions of the business plan could have been more cemented. There were times when my group was unsure of what to do next and we really didn't know how the poster presentation set-up would work."</p>
Career development opportunities	<p>"The [curriculum vitae] CV portion was very nice. Made me feel better about submitting it to a future employer."</p> <p>"I appreciated the CV review. I think this is absolutely necessary because it encouraged me to make positive changes to my CV. I am now more comfortable sending in my resume to future employers. It was also a good reminder that we need to continually update our CV going forward."</p> <p>"The career planning materials were helpful."</p>
Course logistics	<p>"The Moodle [online learning management system] page could have been organized better."</p> <p>"The schedule was really full."</p> <p>"The schedule seems too tight. The many materials that we covered it a strength, but somehow it's also a weakness of this course."</p>

Future plans

Designing and implementing a course is an iterative process. Every year the module has been taught, there have been slight tweaks to the schedule or content based on faculty and/or student feedback. In addition, the last iteration of the course had been completed before the disruptions to higher education caused by the COVID-19 pandemic. Given that the next module offering will be in January-February of 2021, during a seasonal time of likely sustained COVID-19

transmission in the U.S., some of the delivery may need to be changed from an in-person to an online format. Additionally, the poster session may need to become a virtual event. Pharmacy's experiences with the COVID-19 pandemic will also influence some of the content of the next offering. For example, the unit covering drug shortages will need to incorporate timely information on how the pandemic accelerated supply chain disruption (Lohr, 2020). Other examples include the impact of the pandemic on pharmacy operations and

leading during a time of crisis. The dynamic nature of the material in this module provides a great opportunity to share the implications of current events with the pharmacy students.

Competing Interests

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Appendix A: Poster template LEAP Module

LEAP Module Poster Template

Title of poster
Names of team members

Summary

Market Analysis

Marketing & Promotion Strategy

Mission Statement

Operations, Staffing, Resource
Needs

Evaluation and Implementation

SMART Goals

Appendix B: Grading rubric LEAP Module**Business plan assignment grading rubric LEAP Module**

Group number: _____ Evaluator Name: _____

Category: Poster content	15 points	12 points	9 points	6 points	0 points
Summary Description of Service	Addressed exceptionally well. Summary description of service is clear and concise and includes its features and benefits.	Addressed well.	Addressed satisfactorily.	Addressed partially.	Not addressed. No summary and/or no features or benefits are specified.
Mission Statement and SMART Goals	Addressed exceptionally well. Mission statement and at least 3 SMART goals crafted correctly.	Addressed well.	Addressed satisfactorily.	Addressed partially.	Not addressed. Mission statement and/or SMART goals not included or not correct.
Review of Market Analysis	Addressed exceptionally well. Review of market analysis includes at least the following: Target market, market trends, & expected demand long-term; Unique strengths of service & landscape for opportunity; Any weaknesses of service & opponents/competitors.	Addressed well.	Addressed satisfactorily.	Addressed partially.	Not addressed. Market analysis not performed.
Operations, Staffing, Resources Needed	Addressed exceptionally well. Includes at least the following: brief description of staffing and patient volume projections, total "resource need"; financial analysis.	Addressed well.	Addressed satisfactorily.	Addressed partially.	Not addressed. Staffing, patient volume, resource need and/or financial analysis not performed.
Marketing and Promotion Strategy and Plans	Addressed exceptionally well. Includes at least the following: identifies target markets and methods to reach them.	Addressed well.	Addressed satisfactorily.	Addressed partially.	Not addressed. Does not identify target market or methods.
Evaluation and Implementation	Addressed exceptionally well. Includes at least 4 monitoring metrics and timeline with at least 5 goals or milestones for implementation.	Addressed well.	Addressed satisfactorily.	Addressed partially.	Not addressed. No action steps listed to initiate and/or evaluate the service.

Poster presentation grading rubric LEAP Module

Group number: _____ Evaluator Name: _____

Category: Poster Presentation	15 points	12 points	9 points	6 points	0 points
Professional Dress	All team members dressed professionally. (White coats not necessary; please just wear professional dress.)	X	X	X	One or more team members not dressed professionally.
Ability of Team Members to Present Executive Summary of Business Plan	Addressed exceptionally well. Executive summary is complete, clear, and concise and has a logical flow. Presentation has good speed and volume.	Addressed well.	Addressed satisfactorily.	Addressed partially.	Not addressed. Executive summary is not presented by team members.
Ability of Team Members to Answer Questions	Addressed exceptionally well. Team members can answer questions about their new pharmacy service and business plan.	Addressed well.	Addressed satisfactorily.	Addressed partially.	Not addressed. Team members cannot answer questions about the new pharmacy service or business plan.
Poster Organization	Addressed exceptionally well. Poster well-organized and visually pleasing. No typos or issues with formatting.	X	X	X	Not addressed. Poster is disorganized, difficult to read, and/or has issues with format, spelling, and/or grammar.

TOTAL = _____ / 150 points

COMMENTS:

Appendix C: My EQ Action Plan LEAP Module

Name:

Date:

List your scores from the *Emotional Intelligence Appraisal* test below:

- Overall EQ _____
- Self-Awareness _____
- Self-Management _____
- Social Awareness _____
- Relationship Management _____

Pick **one** EQ skill and **three** strategies. Which one of the four core emotional intelligence skills will you work on first? Circle your chosen skill below:

- Self-Awareness
- Self-Management
- Social Awareness
- Relationship Management

Review the strategies for the EQ skill you selected, and list up to three that you will practice below:

- 1.
- 2.
- 3.

My EQ Mentor: Who do you know who is gifted in your chosen EQ Skill and willing to provide feedback and advice throughout your journey?

My EQ mentor is _____

Appendix D: Developing a Plan for Leadership Development Prewrite LEAP Module

Name:

Date:

In order to prepare for the in-class discussion and planning, complete the following sections. Reflection upon your current and past experiences is highly encouraged! Envisioning your future is also recommended.

Section 1: Who are you as a leader now?

It is important to understand who you are as a leader, and how you most effectively lead. All of us lead in some way, with and without titles. Think of leadership here in a broad sense (e.g., *influence, inspiring, empowering, modeling, challenging, encouraging*).

List one time you feel you have been a leader recently:

What leadership style presented in class do you connect with or use most often?

What strengths do you have as a leader? What unique talents set you apart?

Section 2: Where do you want to go?

In this section, the sky is the limit. Be true to yourself, your hopes, dreams, and desires.

In what position/job do you see yourself in three to five years?
 What skills would you like to develop over the next three to five years?

- 1.
- 2.
- 3.

What are your personal and professional goals for the next three to five years?

Personal:

Professional:

At the end of your career, what will your professional legacy be? (In other words, at the end of your career how do you want to be remembered?)

At the end of your career, what will your leadership legacy be? (In other words, at the end of your career how do you want to be remembered as a leader?)

Appendix E: Leadership Development Plan LEAP Module

Name:

Date:

Updated:

Current State:

Self assessment

1. List your top 3 strengths/skills (things you do very well)
 Examples-organization, or good listener, or good communicator
 - 1.
 - 2.
 - 3.
2. List the top 3 values most important to you:
 Examples-trust or feeling what I do is important
 - 1.
 - 2.
 - 3.
3. List your top 3 areas that most need improvement:
 Examples-staying focused or organized or meeting deadlines

Areas of Opportunity

4. What areas do your friends see as opportunities for you to improve?

Skills and Experience Needs

5. Based on the previous sections, list the top 3 skills that would be most helpful to your personal and career growth?
 Examples-strategic skill or learning more about resolving conflict
 - 1.
 - 2.
 - 3.

Defining Goals

6. What position/job would you like to be eligible for upon graduation? Three years post-graduation?
7. What would you like your **professional and/or personal legacy** to be? (In other words, how do you want to be remembered?)
 - a. Personal legacy:
 - b. Professional legacy:
8. What do you want for your life, i.e., your **personal/financial and professional goals** to be?
 - a. Personal/financial:
 - b. Professional:

Steps/Actions: How will you get there? Developing your action plan

9. List at least 3 steps that you feel are crucial to accomplishing your goals.
 - 1.
 - 2.
 - 3.
10. How does your plan link and align your identified strengths with your personal and professional goals?