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**Perspectives of pharmacists and pharmacy students on business management
in community pharmacy.**

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This thesis is submitted in fulfillment of the requirements of the degree of

Master of Philosophy (Health)

at

James Cook University

College of Medicine and Dentistry

Townsville

QLD

August 2023

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Acknowledgements

Completing this thesis would not be possible without the guidance and support of my 3 supervisors and co-authors. I sincerely thank Professor Beverley Glass, Doctor Daniel Lindsay, and Mister Justin Cousins for their time, wisdom, and support during this process. I think there is an element of irony that a significant finding in our research was the importance of receiving a quality standard of mentorship, matching the right mentees with mentors. During this process I was fortunate to be the beneficiary of receiving quality mentorship through constructive feedback, more than I expected in the beginning of this journey, with the right balance of encouragement to complete this project. I have listened and learned valuable information from all 3 supervisors, and I am grateful for their time and effort. Together we have contributed to the common goal of answering our research question.

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"The real voyage of discovery consists not in seeking new landscapes, but in having new eyes".

(Marcel Proust).

Statement of the Contribution of Others

This thesis includes collaborative work with my supervisors Prof. Beverley Glass, Dr. Daniel Lindsay, and Mr. Justin Cousins. Whilst the investigations comprising this thesis was a collaborative effort, I was the lead researcher for the conceptualization, methodology, formal analysis, investigation, data curation, validation, visualization, writing – original draft, writing – review and editing. It is anticipated that Chapters 2, 3, 4, and 5 of this thesis will be published. Thus, I have outlined the Statement of Contribution of others for these specific Chapters.

Chapter 2: Conceptualisation: BJD, BDG; Methodology: BJD, BDG, DL; Formal analysis: BJD, BDG, DL, JC; Investigation: BJD; Data curation: BJD; Writing: BJD, BDG, JC, DL; Visualisation: BJD; Supervision: BDG, JC, DL.

Chapter3: Conceptualization: BJD, DL, JC, BDG; Data curation: BJD, DL; Formal analysis: BJD, DL; Investigation: BJD, DL, JC, BDG; Methodology: BJD, DL, JC, BDG; Software: BJD; Validation: BJD, DL, BDG; Visualization: BJD, BDG; Supervision: DL, JC, BDG; Writing - original draft: BJD; Writing – review and editing: BJD, DL, JC, BDG.

Chapter 4: Conceptualisation: BJD, BDG; methodology: BJD, BDG, DL; validation BJD, BDG, DL, JC; formal analysis: BJD, BDG, DL, JC; investigation: BJD; Data curation: BJD; writing – original draft preparation: BJD; writing – review and editing: BJD, BDG, JC, DL; visualisation: BJD; project administration: BJD, JC, BDG; supervision: BDG, JC, DL. All authors have read and agreed to the published version of the manuscript.

Chapter 5: Conceptualization: BJD, DL, JC, BDG; Data curation: BJD; Formal analysis: BJD, DL, JC, BDG; Investigation: BJD, DL, JC, BDG; Methodology: BJD, DL, JC, BDG; Software: BJD; Validation: BJD, DL, BDG; Visualization: BJD, BDG; Supervision: DL, JC, BDG; Writing - original draft: BJD; Writing – review and editing: BJD, DL, JC, BDG.

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Abstract

Introduction

Pharmacists are challenged in all practice settings in that they are operating in a business as well as a healthcare environment. The community pharmacist especially has a dual role of both healthcare provider and business manager. However, business management is not why most pharmacists are attracted to the profession and this important role is therefore often overlooked by pharmacy educators and community pharmacists. This is true as well for pharmacy students, who often fail to recognise the relevance of business management as an integral part of their curriculum resulting in them entering into community pharmacy underprepared for their role. Although elements of business management are included in the university pharmacy programs, there is often a lack of evidence as to whether the content or delivery is aligned with the needs of the profession in terms of the skills required from a recent graduate. This project aims to investigate the perspectives of pharmacy students and community pharmacist stakeholders (community pharmacist owners, community pharmacist managers, and community pharmacists) in relation to the content and delivery of pharmacy management, with a view to providing a framework for inclusion in the curriculum.

Methods

A scoping review was conducted with the aim of exploring the perceptions of pharmacy stakeholders and students in relation to the business management skills required for a community pharmacist by searching eight electronic databases in accordance to the preferred reporting items for systematic reviews and meta-analyses extension for Scoping Reviews (PRISMA-ScR). This scoping review informed the explanatory sequential mixed methods design of a pharmacy student questionnaire and focus groups in addition to community pharmacist stakeholder interviews. An online questionnaire was administered to year 1 and year 4 pharmacy students across 2 Australian universities, and responses were statistically analysed using descriptive statistics. Pharmacy student perceptions were explored via focus groups with employment of a hybrid inductive and deductive approach to coding. Pharmacy stakeholder interviews were conducted with participants across 2 states in Australia using a qualitative descriptive approach. The resulting transcriptions were thematically analysed. Pharmacy student and community pharmacist stakeholder results were integrated and purposely explored for similarities and differences in perceptions on business management.

Results

Scoping the literature extracted 36 business management skills/aptitudes that pharmacy students and community pharmacist stakeholders perceive to be required for the community pharmacist. Fifty-one pharmacy students responded to an online questionnaire and ranked all business management skills/aptitudes, identified from the scoping review, important or very important for the role of a community pharmacist. Eighty-five percent of students believed business management to be an essential role for the community pharmacist and 81% responded that learning business management will help their future career. Students indicated a preference to learn business management, whilst undertaking community pharmacy placement, during workshops, or by mentorship. Qualitative data from student focus groups highlighted that although students think business management is important, there is a stronger preference to learn clinical skills. Students revealed barriers that could be affecting business management practice in the profession, such as the role is too focussed on meeting financial targets, but also recommended strategies to enhance business management in community pharmacy, with quality mentorship being one example. Across 12 community pharmacist interviews there were 35 business management skills described being used during a routine workday with just below a third of these skills being consistently described by all participants. Integrating the results across stakeholders and students generated five potential barriers impeding change to business management practice across the pharmacy program and community pharmacy setting, and five recommended strategies to improve the managerial competence of the community pharmacist. Barriers identified surrounded the discounting practices of pharmacy, a lack of interest, learning from theoretical content, education programs delivering followers not leaders, and the profession is time-poor. Strategies to improve business management include developing a dual thinking process, covering human resources in the education curriculum, implementation of a mentorship program, viewing work colleagues as people to help do better, and learning managerial skills in the practice environment.

Conclusion

This study has highlighted that business management is an important role for the community pharmacist. Pharmacy students and community pharmacists indicated that a business management skills framework, extracted from the scoping review, was reflective of the managerial skills required across the profession. Teaching business management to clinically focussed pharmacy students in a curriculum void of time to cover this content are examples of barriers to business management in the education of pharmacy students. Recommendations to improve student engagement include keeping the content simple, engaging students with real-world context, and using a multi-method teaching approach. Community pharmacists developing a dual thinking process, the right balance between healthcare provider and business manager, was an important recommendation for the profession.

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1 CHAPTER 1 INTRODUCTION

Expanding scope of practice has created opportunities for the community pharmacist to use business management skills to innovate and explore new and sustainable business models¹⁻³. Despite this opportunity, in countries such as Australia, the traditional community pharmacy transactional business model reliant on dispensing prescriptions still dominates, which has raised questions surrounding the business management competence of the community pharmacist to adapt and innovate⁴⁻⁶. The responsibility of developing business management skills within the profession has primarily relied on university pharmacy programs covering business management in the curriculum. Although the inclusion of business management as core content in the pharmacy program is not universally consistent, university educators from countries such as Australia⁷, Canada^{8,9}, the United Kingdom¹⁰, and the United States of America^{11,12} have agreed on the importance of educating pharmacy students in business management. They are however challenged especially by the lack of literature available on the business management role of the community pharmacist to inform their teaching, and pharmacy student cohorts with a strong preference to learn the clinical skillset, not recognising the need for business management in their future career¹³. Reflecting on the history of the profession, can inform on why the business management role of the community pharmacists has become a recent area of importance.

1.1 History of business management in community pharmacy

The role of community pharmacists has expanded beyond the delivery of traditional apothecary services and now focuses on providing clinical services such as immunizations¹⁴⁻¹⁶. This expansion has created opportunities for pharmacists to use their business management skills to implement financially viable business models that prioritize and ensure the sustainability of these clinical services^{8,9}. Community pharmacy's current focus is to re-professionalize towards a service-based industry due to public expectations and increased market competition^{5,17}. However, globally the core business of community pharmacies remains dispensing high volumes of prescriptions with unprofitable margins, combined with a lack of funding and innovation to allow the change to a clinical service-based pharmacy¹⁸⁻²¹. As a result, there has been an increase in studies researching business management in community pharmacy, since the beginning of the 21st century^{8,9,11,22}.

In 2002 Latif¹³ made an important assumption about the profession; pharmacists are managers as they will likely be responsible for managing others. Latif¹³ aimed to improve the managerial

effectiveness of pharmacy students through the introduction of a community pharmacist managerial skillset, in which pharmacists were required to demonstrate competence in conceptual, human, and technical skills, with the categorisation of management skills into these three domains based on the work of Robert Katz²³. Latif's^{12,13} contribution to the field continued, planning and implementing a pharmacy student management skills course. Two important findings emerged: Firstly, pharmacy students who as future pharmacists managing others required more than just being taught theoretical management principles, if they are to be effective in this management role. Secondly, management is learnt from experience, over a period of time, and one single semester of course content is likely insufficient to prepare pharmacy students for their future career. Since Latif's papers^{12,13}, there has been a steady contribution of publications, which have added to the knowledge base on business management for the community pharmacist^{8,9,11,24}. However, to the researcher's knowledge, a New Zealand study by Ram et al.²⁵ in 2015 is the only investigation into community pharmacist business management role to include the conceptual, human, and technical skill domains. An important finding of this study was that human domain skills, such as communication and empathy, were considered key requirements for the managerial role in community pharmacy²⁵.

Describing the range of business management skills required for the community pharmacist and the teaching methods to deliver these skills to pharmacy students is a growing field of research. Potentially the two most comprehensive studies to investigate pharmacy management are by Faris et al.²⁶ and Augustine et al.¹¹. Faris et al.²⁶ used a questionnaire to investigate U.S. and Canadian pharmacists' perceptions on the importance of managerial skills, asking them to self-rate their own strength in each specified skill. Augustine et al.¹¹ reported on pharmacy preceptors' perceptions, using a focus group methodology to identify key managerial skills that new graduates need, but do not have. Predominantly, current literature on the business management role of the community pharmacist is often designed to identify knowledge gaps in recent graduates or early career pharmacist's education²⁷⁻²⁹. Whilst helpful at identifying important managerial content to cover in pharmacy programs, these investigations have not described the complete range of business management skills required for the profession.

The importance of including business management in the pharmacy program and how to best teach students this content has also been debated by university academic staff. This is evident from a 2012 study by Rollins et al.³⁰ who investigated whether the exclusion of business management from pharmacy curricula was detrimental. The outcome was that university programs should cover business management so as not to disadvantage their students. A more recent 2022 commentary by Schuh³¹ supported the findings of Rollins et al.³⁰ by discussing whether business management training should be a more significant element of pharmacy training. There is also further evidence to support the

inclusion of business management in pharmacy curricula. A study in 2013 by Davies et al.¹⁰ found that 84.9% of pharmacists in the U.K used business management skills daily, and 79% additionally agreed that managerial skills are being prioritised in community pharmacy. This trend was consistent with a 2015 study by Fejzic and Barker²⁸, where Australian pharmacist preceptors were shifting their focus to hiring pharmacists with the required business management skills to apply to expanding the scope of practice across the profession.

University pharmacy programs are increasingly recognising the expanding role of the community pharmacist and as a result there is an increased importance placed on business management³². Studies have reported that the current lack of business management skills in the profession, may be attributed to the teaching methods for business management during the undergraduate pharmacy programs^{8,12,33}. Of particular concern is the classic method of didactic teaching, where students have revealed that rote learning the answers and 'dumping' the knowledge may have resulted in their lack of confidence to apply business management skills in practice^{9,13}. This has resulted in several tertiary educators to trialling innovative or multi-method teaching to better equip pharmacy students with business management skills^{6,7,34}. These experimental teaching methods have delivered promising results, as evidenced by Gatwood et al.³⁵ where students learning business management through an experimental approach responded with a better understanding in comparison to a traditional method. Although studies are limited in number²⁹, information on how to best prepare pharmacy students for the business management is a valuable resource for pharmacy educators.

Improving the business management capabilities of community pharmacists is an area of interest and importance across the profession³². To the researcher's knowledge, there is no blueprint available for pharmacy educators to know what business management skills to cover in the pharmacy school program or how to effectively deliver this content to students in the university curriculum. Creating a potential conceptual, human, and technical skills business management framework, combined with the most effective method(s) to deliver this content to pharmacy students, would be a timely contribution to the literature and a valuable source of information for university educators.

1.2 Study aims and objectives.

This study aims to explore pharmacy student and pharmacy stakeholder perceptions on the business management role for the community pharmacist and to compare these perspectives. To achieve this aim, the following methodology (Table 1) was employed to meet the specified objectives:

Table 1. Study design, objectives, and methods for thesis chapters

Chapter	Study design	Objectives and methods
2	Scoping literature review	To conduct a scoping literature review on the business management role of the community pharmacist to determine the managerial skills required and how to best learn these skills in the pharmacy education program. This review will include the perceptions from: <ul style="list-style-type: none"> a) Community pharmacist stakeholders. b) Pharmacy students.
3	Explanatory sequential mixed method design Quantitative – Survey Qualitative – Focus groups	To explore pharmacy student perceptions on the business management role for the community pharmacist. <ul style="list-style-type: none"> a) Conduct a student survey. b) Statistically analyse survey. c) Survey results inform student focus group framework. d) Conduct focus groups. e) Transcribe and analyse student focus group data. f) Integration of quantitative and qualitative phases (Chapter 5)
4	Qualitative descriptive approach study design. Interviews	To explore community pharmacist stakeholder perceptions on the business management role for the community pharmacist. <ul style="list-style-type: none"> a) Conduct community pharmacist stakeholder interviews. b) Transcribe and analyse community pharmacist stakeholder interview data.
5	Integration of the results from Chapter 3 and Chapter 4.	To compare pharmacy students and community pharmacist stakeholders’ perceptions of business management for the community pharmacist.

- a) Identify potential barriers to involving business management in the practice setting.
 - b) Propose strategies to address these barriers with a view to improving the business management competency of the community pharmacist.
-

1.3 Methodology

The study was set in two Australian States, and across two universities, with a scoping review undertaken to inform the research question and the choice of theoretical frameworks and the mixed method study design.

1.3.1 Study setting

Pharmacy students from year 1 and year 4 across two states in Australia, Queensland, and Tasmania, were selected as participants to explore the business management role of the community pharmacist. Two areas of particular interest involved the business management skills required for the role of the community pharmacist, and how best to learn these skills during the university program. James Cook university in Queensland (JCU) and the University of Tasmania (UTAS) share similarities in city population, pharmacy student cohort numbers, and curriculum content. Although UTAS resides in the Capital city of Hobart, both JCU and UTAS are located in large regional areas. Pharmacy students graduating from these universities often work in regional, rural, and remote locations, where they may be required to operate as the sole community pharmacist^{36,37}. Although more research is required to differentiate urban and regional community pharmacy practice, it is likely a less common occurrence to work as the sole community pharmacist in metropolitan locations. This may be attributed to a higher proportion of independent community pharmacies operating in these less populated regions³⁶. Working in more rural and remote locations comes with additional challenges for the community pharmacist. Workforce shortages, lack of skilled support staff, and a need for improved health care outcomes for residents are known problems in these regions^{36,37}. These workforce shortages have contributed to community pharmacists finding themselves working in these challenging community pharmacy environments before they have gained the required business management experience³⁸. Preparing JCU and UTAS pharmacy students with the required business management skills during their pharmacy degree, has a role to play in equipping these future community pharmacists with the skills required to work in these challenging locations.

Recruiting community pharmacists from the same states as pharmacy students, Queensland, and Tasmania, was a logical choice to explore their perceptions of business management in the profession. Community pharmacists from these states are more likely to have graduated from and/or interact with pharmacy students from their respective state universities of JCU or UTAS, for example during university placement, which may provide more informed responses. It is anticipated that this familiarity with pharmacy students and/or the university pharmacy program content may be beneficial to further understanding the business management role of the community pharmacist.

1.3.2 Scoping review

To inform this study, Chapter 1 of this thesis includes a scoping literature review that was conducted based on the 6 stages of the Arksey and O'Malley³⁹ scoping review framework. This scoping review synthesised the perceptions of community pharmacist and pharmacy students on the business management role of the community pharmacist. Community pharmacists and pharmacy students are a valuable source to inform on the business management skills required for the role of the community pharmacist, and how to best teach these skills to students during their degree program. Latif¹³ identified that the lack of information on the business management role of the community pharmacist, and this is true too for the perceptions of community pharmacists and pharmacy students. Exploring the lived experience of community pharmacists and pharmacy students, understanding their perceptions on the business management role of the community pharmacist, is the knowledge gap and of current interest to the profession, which has informed the research question of this study.

1.3.3 Research question

What do community pharmacist stakeholders and pharmacy students perceive are the business management skills required for the role of the community pharmacist, and how best can this business management content be delivered in the university curriculum?

1.3.4 Theoretical frameworks

Latif¹³ proposed a potential community pharmacy business management framework based on the categorisation of business management skills according to Robert Katz²³. To align with literature findings and to allow for comparisons, this study also employed Katz's business management framework, which categorises business management skills into 3 major groups: conceptual, human,

and technical. Katz's 3 skill business management framework is further divided into a hierarchical management structure: low-level, mid-level, and top-level management. Low-level managers prioritise mainly technical and human skills, whereas top-level managers focus on conceptual and human domain skills. Most pharmacy students will enter the community pharmacy profession requiring low-level managerial skills. Katz's²³ framework has allowed this study to construct a categorised business management framework and analyse the composition of categories of managerial skills used across varying types of managers in community pharmacy.

Gaining insight into the effective teaching of business management to pharmacy students is a desired outcome of this study. To analyse community pharmacist and pharmacy student perceptions of teaching methods, this study will employ the theoretical framework of Anderson's revised version of Bloom's Taxonomy⁴⁰. Anderson's taxonomy is a hierarchical level of complexity for classification of educational learning, low complexity to high complexity. Educators can determine the effectiveness of learning plans by determining the depth of student comprehension based on the associated hierarchical level of complexity in the framework⁴¹. There are 6 levels in the hierarchical framework to learning (low to high): remembering, understanding, applying, analysing, evaluating, and creating⁴². With regards to pharmacy students learning business management, Anderson's taxonomy can be used to explore why different teaching approaches are preferred. This framework allows this data to be explored with reasoning through a hierarchical level of complexity. The lowest levels of complexity of remembering and understanding are consistent with classroom setting learning outcomes. Applying this knowledge in practice, such as community pharmacy, is associated with a higher level of complexity, where the student can demonstrate, interpret, solve, and discover. Anderson's taxonomy informs this investigation to analyse and interpret why different approaches to teaching business management may be more effective.

1.3.5 Sequential explanatory mixed method design

This study employs a sequential explanatory mixed method design (Figure 1). Pharmacy students were given the opportunity to respond to an online questionnaire followed by voluntary participation in focus groups. Community pharmacists were invited to participate in semi-structured interviews. Responses from the questionnaires, focus groups, and interviews will be integrated and explored. A sequential explanatory mixed methods approach to research is generally employed when the researcher has both a research question and either quantitative or qualitative data independently will not sufficiently answer the research question⁴³⁴⁴. A quantitative instrument, such as the questionnaire, was used to collect objective data from the students on a business management in

community pharmacy. Analysis of this data, generating results that require further explanation to understand their meaning of these results, as was in this case often requires the development of qualitative data collection methods, such as interviews or focus groups, to gain a deeper understanding of the experiences, perspectives, and beliefs of both the student and pharmacist participants.

Interviews discussing business management practice were undertaken with purposively selected pharmacists from geographically distributed locations, and accommodations made to assist with their busy working schedules. Focus groups with a small but representative sample of pharmacy students, allowed the participants to collaborate and grow their reflections together about their opinions of business management in community pharmacy as a group⁴⁵. Combining both quantitative and qualitative data collection methods in a sequential explanatory mixed methods study, was to gain a more nuanced understanding of the business management in community pharmacy being studied⁴⁶. This approach assisted in ensuring that the study findings were both reliable and valid, as multiple sources of evidence were considered in the analysis.

1.4 Thesis Chapter summary

This thesis comprises 4 Chapters on the business management role of the community pharmacist, summarised in Table 2, which includes the publication status of each Chapter. Commencing with a scoping review in Chapter 2, followed by the investigation into pharmacy student and community pharmacist stakeholder perceptions in Chapter 3 and Chapter 4 respectively, and finishing with the integration of pharmacy student and stakeholder results in Chapter 5.

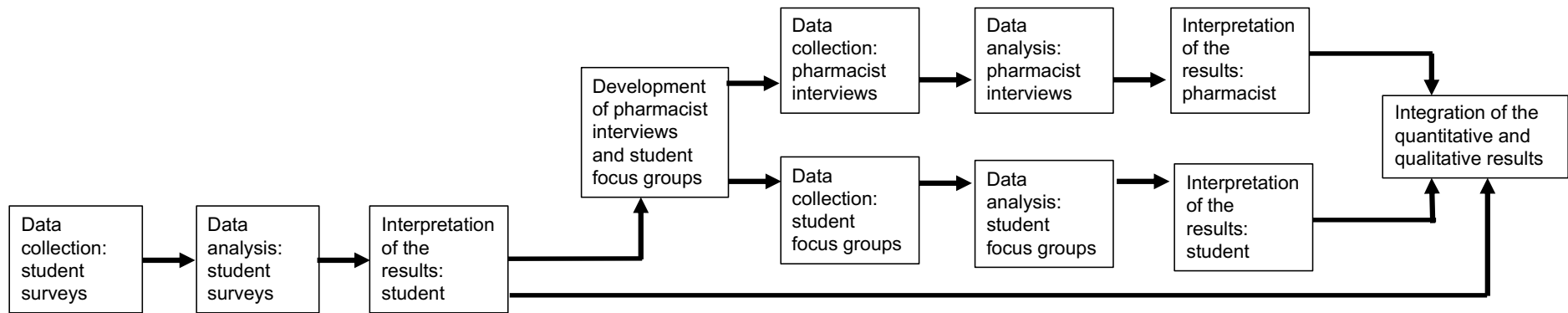


Figure 1. Sequential explanatory mixed methods study design

Table 2. Summary of thesis chapters with their respective publication status.

Chapter	Study design	Chapter title	Publication status	Journal
1	-	General introduction	-	-
2	Scoping review	Scoping the required business management skills for community pharmacy: Perspectives of pharmacy stakeholders and pharmacy students	Published July 2022	<i>Currents in Pharmacy Teaching and Learning</i>
3	Pharmacy student perceptions	Pharmacy students' perspective of business management for the community pharmacist	Published July 2023	<i>American Journal of Pharmaceutical Education</i>
4	Community pharmacist perceptions	"Why didn't they teach us this?" A qualitative investigation of pharmacist stakeholder perspectives of business management for the community pharmacist.	Published June 2023	<i>Pharmacy</i>
5	Commentary: Integrating pharmacy students and community pharmacist perceptions	Strategizing the removal of barriers to community pharmacist's business management capabilities.	Submitted for review July 2023	<i>American Journal of Pharmaceutical Education</i>
6	-	Conclusion and Recommendations	-	-

1.5 References

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2 CHAPTER 2 SCOPING LITERATURE REVIEW

A scoping literature review was undertaken in July 2020 to identify community pharmacist stakeholder and pharmacy student perspectives on the business management role of the community pharmacist. This scoping review informed Chapter 3 and Chapter 4 of this study, and was published in *Currents in Pharmacy Teaching and Learning*². [Davey BJ, Lindsay D, Cousins J, Glass BD. Scoping the required business management skills for community pharmacy: Perspectives of pharmacy stakeholders and pharmacy students. *Curr Pharm Teach Learn*. 2022;14(7):909-928. doi:10.1016/j.cptl.2022.07.002].

2.1 Abstract

Background

Industry vision for the community pharmacist is prioritising professional healthcare services. Successful transition into this role includes improving community pharmacist training and confidence in effective business management. The literature is dearth in identification and categorisation of business management skills community pharmacists require. Community pharmacy stakeholders (comprising predominantly of community pharmacy owners, managers and pharmacists) and pharmacy students are a valuable source of knowledge for identifying business management skills.

Methods

Eight electronic databases were searched for published articles, with titles and abstracts screened according to inclusion criteria. Full articles meeting the criteria specified were assessed and skills identified were mapped to the human, conceptual and technical skills of a business management framework.

Results

Pharmacy stakeholders and students identified thirty-six business management skills/aptitudes required for community pharmacists. Pharmacy stakeholders identified most frequently the skills of communication, professionalism, general business management, leadership and teamwork. Although the pharmacy students concurred with many of these skills, they more frequently identified confidence, entrepreneurship and having prior experience or opportunity in a management role. A substantial number of identified skills/aptitudes are categorised under the human domain of the business management framework.

Implications

Community pharmacists require training and confidence in effective business management, with particular emphasis on human domain skills. The tertiary education system should consider implementing the skills/aptitudes revealed in this review into the pharmacy curriculum. Recruiting and integrating business minded personalities into the profession, particularly targeting students with an attraction to business management, is one strategy to improve management skills within the industry.

2.2 Introduction

The role of a community pharmacist is viewed as a blend between business manager and healthcare provider.¹⁻⁵ Throughout the evolution of the profession, there has been a cultural trend to favour and emphasise the clinical role.⁵⁻⁷ Focus on the patient in pharmacy has continued through to the late 20th and early 21st century, with expansion of both clinical skills and services provided.⁸⁻¹⁴ This expansion was in part catalysed by the foundation paper published in 1990 by Hepler and Strand: *'Opportunities and Responsibilities in Pharmaceutical Care'*.¹⁴ This paper called for patient-focused outcomes to highlight the unique role of the pharmacist in the health care sector. Subsequent to this, the pharmacy profession became dominated by the clinical role and the expansion of services, whilst the pharmacy management role received little attention.^{3,15} The community pharmacist is part of a dual natured profession that requires mastering both clinical and business management skills.^{1,3,16} Globally the tertiary education system acknowledges the dual nature of the profession,¹⁶⁻²⁰ and in Australia pharmacy students are required to be trained with the business management skills to prepare them for a career in community pharmacy.²¹

The community pharmacist has expanded their role from that of the traditional apothecary, to focus on the patient, trained to deliver an array of clinical service's (e.g. immunisations).^{8,14,22-31} The expansion of the professional role has in fact created opportunities for the pharmacists to use their business skills to embrace the changing market and show innovation to implement financially viable business models prioritising clinical service.^{25,32-35} Community pharmacy has endeavoured to re-professionalise towards a service-based industry due to a number of factors including public expectation^{10,36,37} and the increase in market competition.^{25,38-40} There is the expectation that pharmacists possess the training in management skills to lead the profession away from a business dependent on dispensing medicines and adapt to a professional patient-focussed business model^{16,41,42}. However, the core business of community pharmacies remains dispensing high volumes of prescriptions with increasingly unprofitable margins, which is combined with a lack of funding and innovation in adapting to a clinical service-based pharmacy.^{27,43-49} Consequently, there has been a

rapid rise in the number of studies researching business management in community pharmacy.^{1,4,16,19,50,51}

Universities have recognised the evolving profession of a community pharmacist and the increased importance business management as the industry struggles to adapt to environmental changes.^{4,19,42,51,52} Studies have revealed potential explanations for the lack of skilled pharmacy management in the profession and as such the teaching methods for business management during the pharmacy curriculum have been investigated.^{4,18,51-53} Of particular concern is the classic method of didactic teaching, where students have revealed rote learning the answers, 'dumping' the knowledge and consequently displaying limited confidence when required to apply the business management skills.^{16,19} This knowledge has guided a number of tertiary educators to trial innovative mixed method teaching to better equip pharmacy students with business management skills.^{41,42,54} These experimental teaching methods have delivered promising results but require further knowledge of the management skills specific for pharmacy. Describing the range and type of business management skills that are required for a community pharmacist is a growing area of research.^{1,20,50} Many of the previous studies in the area of pharmacy management have focussed on identifying knowledge gaps that exist in either recent graduates or newly registered pharmacists.^{55,56} Whilst helpful at highlighting areas of improvement for the curriculum, these studies have failed to reveal the complete scope of business management skills required in community pharmacy due to a lack of an overview of the range of business skills and their potential importance.^{18,19,53,57}

Revealing the complete range and description of the skills required in pharmacy management would make a valuable contribution to the profession.^{25,49} Existing studies primarily aim to rank the most important management skills, highlight knowledge gaps or improve teaching methods in recent graduates.^{20,55,56,58,59} While individually these studies are limited, together they offer a more holistic view of identifying the management skills required for a community pharmacist. This scoping review thus aims to explore the perceptions of pharmacy stakeholders and students in relation to the business management skills required for a community pharmacist. This is a novel approach to fill a knowledge gap in the community pharmacist management literature and will be illustrated against a conceptual, human or technical business framework.⁶⁰

2.3 Methods

2.3.1 Search strategy

A scoping literature review following the preferred reporting items for systematic reviews and meta-analyses extension for Scoping Reviews (PRISMA-ScR) was conducted in July 2020 based on the

6 stages of the Arksey and O'Malley scoping review framework.⁶¹ ABI/Inform, CINAHL, Emerald/Insight, ERIC, MEDLINE Ovid, Web of science (WOS), and Google Scholar were searched using a derivation of the following keywords: ((MH "Students, Pharmacy") AND (MH "Pharmacist Attitudes") AND (MH "Pharmacy Service") AND (MH "Pharmacists") AND (MH "Education, Pharmacy")) AND management skills. The search strategy for each database is specified in Appendix A. There were no restrictions imposed on the dates or literature types placed on any of the database searches.

Citation details of potential publications, generated from the search strategy, were recorded (authors, literature title, journal source, year of publication, country of origin, and relevant page numbers) and an abstract screening conducted to determine if an article fulfilled the inclusion criteria. Articles consisting of the same title and abstract were considered a duplicate and removed from the search. To ensure all relevant articles were included in this review, the reference list of potential publications was screened to highlight studies missed during the database searches. Google Scholar was used to source and screen each potential publication from the reference list, with the inclusion criteria being applied to determine if the study could be included in this review.

2.3.2 Inclusion and exclusion criteria

The studies remaining, based upon the initial abstract screening, were rigorously investigated by a full-text reading to ensure relevance to the research question: What are the perspectives of pharmacy stakeholders or students of the skills and aptitudes required for business management in community pharmacy? To be included in this review, relevant studies had to be in English, entire text published articles and include the identification of a business management skill required for a community pharmacist. Studies were only included if a business management skill perceived required for a community pharmacist was identified from a pharmacy stakeholder (pharmacy owner, pharmacist manager, community pharmacist, pharmacist employer, pharmacy academic, pharmacist preceptor) or undergraduate pharmacy student (university student inclusive from year one to the level of pre-registration pharmacist).

After an extensive screening of the literature, exclusion criteria were applied. Studies were excluded if they did not relate to the research question of the scoping review or business management in community pharmacy (e.g., papers specifically related to hospital pharmacy, industry, drug trials, and board meetings). Other excluded studies contained those where a business management skill was being identified by a non-pharmacy stakeholder or student (e.g., business management academic or specifically focussed on hospital pharmacists), the study was a literature review, study piece, unpublished thesis, and opinion article. Two authors consulted on the full-text articles for inclusion/exclusion to resolve uncertainty at this stage.

2.3.3 Categorisation and quality assessment of the studies

The studies included in the scoping review (Figure 2) were included in a table by author, country, aim(s), methodology, findings, skills and aptitudes (Table 3 and Table 4). Each business skill or aptitude perceived to be required by a community pharmacy stakeholder or student was identified from survey responses, interviews or focus groups transcriptions (Appendix B). These were then categorised into three domains based on Katz’s managerial skills framework;^{60,62} conceptual, human and technical (Figure 3). Due to the potential subjectivity of classification, where possible, current pharmacy management studies by Latif¹⁶ and Ram¹ were used to categorise business skills/aptitudes into one of the three domains. To assess the quality of the literature, the Newcastle-Ottawa scale⁶³ for cohort studies was employed to assign a ranking to each publication included in this review (Table 6).

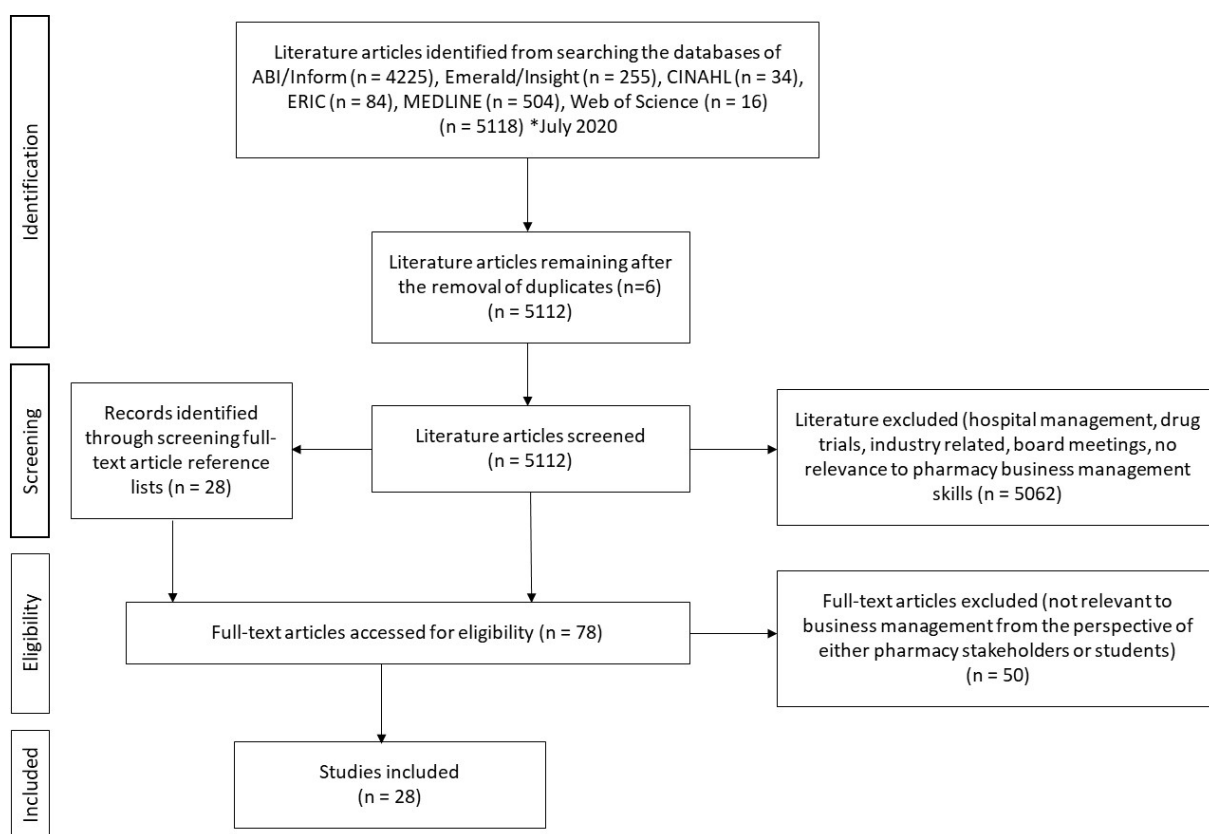


Figure 2: Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR)⁶¹ flowchart for study selection process.

2.4 Results

The search strategy generated 5146 records. After removal of duplicates and applying the inclusion and exclusion criteria, 28 studies were identified and reviewed (Figure 2).

A range of methodologies was employed for the pharmacy stakeholder studies. The publications included surveys/questionnaires 47% (n=9),^{5,17,32,51,55,58,59,64,65} interviews 26% (n=5),^{1,50,56,66,67} focus groups 5% (n=2)^{20,67} and mixed methods 5% (n=1).⁶⁸ Other journal articles included were commentaries 10% (n=2),^{16,25} and fixed-interval work sampling technique 5% (n=1).⁴⁷ Similarly, pharmacy student studies were predominantly undertaken by surveys/questionnaires 75% (n=9).^{4,17,18,51,52,56,57,69,70} Other journal articles included for this review on pharmacy students used mixed method 8% (n=1),⁵³ a case study 8% (n=1)⁷¹ and a qualitative analysis of reflection paper 8% (n=1).⁷² The literature contained in the review for both pharmacy stakeholders and students was original research published between the years 1997 to 2019.

Each publication was individually reviewed, and the authors, country in which research was conducted, aims, methodologies and findings of the studies are presented in Tables 1 and 2. Each of the 28 articles were screened for business management skills that either a pharmacy stakeholder (n=19)^{1,5,16,20,25,32,47,50,51,55,56,58,59,64-68} or student (n=12)^{4,17,18,51-53,56,57,69,70,71,72} identified as being required in community pharmacy management, with three papers including skills or aptitudes from both pharmacy stakeholders and students.^{17,51,56} Some of the skills/aptitudes identified from the studies were synonyms of each other or identified under one description (Appendix B). In total, 36 business skills and aptitudes were extracted from the studies that either a pharmacy stakeholder or student perceived to be required for pharmacy management.

The skills/aptitudes were divided into the three domains from the business framework defined by Latif¹⁶ and Ram et al.¹ and outlined in Figure 3: conceptual, human and technical. The proportion of times a skill/aptitude was identified was calculated from a total of n=19 pharmacy stakeholder and n=12 pharmacy student publications (Table 5). Of the 36 skills/aptitudes pharmacy stakeholders or students identified, 31% (11) were classified as conceptual, 47% (17) as human and 22% (8) as technical (Figure 3). The finding that 47% of the skills/aptitudes fell within the human component of the framework is notable. Both participant groups similarly identified the skills/aptitudes categorised under each domain of the management framework (Table 5). No other association was observed between the participant group and domain choice.

There were 5 skills/aptitudes perceived to be required for management by pharmacy stakeholders that students did not mention; business acumen and technology (technical), networking and relationship building (conceptual), stress management and affinity to role repetitiveness (human). The most frequently required skill to be identified (i.e., number of times identified relative to the total number of studies) was communication (human); 18 out of 19 (95%) pharmacy stakeholders papers^{1,16,20,25,32,47,50,51,55,56,58,59,64-68} and 9 out of 12 (75%) student papers^{4,17,18,51,53,56,57,69,71} revealed

communication as a required management skill. The human domain of the management framework comprised both the greatest proportion (47%) and most frequently identified skills/aptitudes (Figure 3). Four out of the five (80%) top skills/aptitudes extracted from pharmacy stakeholder publications were all from the human domain of the framework: communication, professionalism, leadership and teamwork. Pharmacy students' perceptions showed a similar trend, with 6 out of the top 10 (60%) frequently identified skills/aptitudes categorised under the human domain. There were differences between the 2 groups in the number of times skills/aptitudes were identified in this study (Figure 3). Pharmacy stakeholders identified 8 skills/aptitudes over 30% more frequently than students; 4 skills/aptitudes from human (professionalism, leadership, teamwork and customer care), 1 skill/aptitude from conceptual (networking and relationships) and 3 skills/aptitudes from technical (professional development, business acumen and technology). Pharmacy students identified 3 skills/aptitudes more frequently than stakeholders; 1 skill/aptitude from the conceptual (entrepreneurship), 1 from the human (confidence) and 1 technical (prior experience or opportunity in business management).

All studies in this review identified management skills/aptitudes from the conceptual and human domain (Table 3 and Table 4). Pharmacy stakeholders were able to identify at least one technical skill/aptitude in all publications (19/19),^{1,5,16,20,25,32,47,50,51,55,56,58,59,64-68} but 47% of these studies (9/19)^{1,16,47,51,55,56,65-67} only identified a maximum of 2 technical skills/aptitudes. This trend was similar for pharmacy students, where 83% of studies (10/12)^{4,18,51-53,56,57,70,71,72} identified a maximum of 2 technical skills/aptitudes, but 58% (7/12)^{4,17,52,53,56,69,70} of the student papers did not identify a single technical domain skill categorised from the management framework. These results may be in part due to fact that the primary objective of most studies (n=25)^{4,5,16-18,20,25,32,47,51-53,55-57,59,64-72} was not to identify the skills/aptitudes required for pharmacy management. The majority of research aims in the reviewed literature could be linked to 3 main research topics: a) the skills required to be a community pharmacy manager (n=3),^{1,50,58} b) the best teaching method of business management to undergraduate students (n=12),^{4,16,18,32,51,53,57,67,69,71-73} and c) the clinical or business management skills required for graduate students and newly registered pharmacists (n=7).^{20,50,51,55,56,59,68}

Assessing the quality of articles in this study was performed using the Newcastle-Ottawa scale. For the criteria of selection, no studies in this review contained a non-exposed cohort and thus a 4 stars rating was not achievable. Studies for both stakeholders and students received 2 or 3 stars for selection, depending on how accurately each group was represented from the community. Only students received 2 stars in the criteria for comparability, with these studies comparing both different year levels and pre- and post-course work. Most articles for both groups were not comparing a distinct constituent and thus received no stars. Stakeholders were primarily assigned with 1 star for the criteria

of outcome as these studies were independent blind or record linkage. Students are more accessible to follow-up post study, and this was reflected in the grading of the outcome standard, with publications receiving a more even distribution of 1 and 2 stars. Table 6 summarises the quality assessment of the studies used in this review.

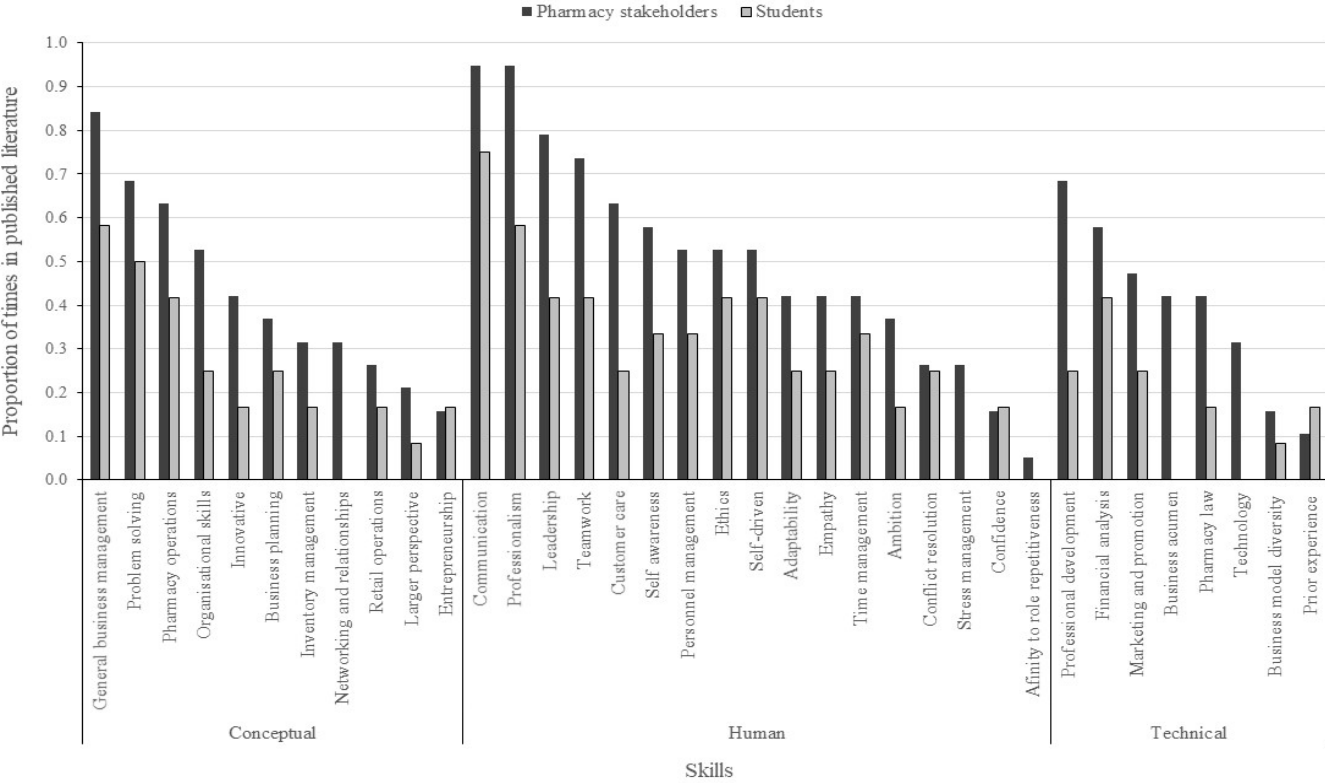


Figure 3: Proportion of time skills/aptitudes were identified by either pharmacy stakeholders or students in published articles; under the conceptual, human and technical domains.

Table 3: Pharmacist stakeholders’ perceptions of skills and aptitudes required in pharmacy management. Summary rating provides an overall assessment of published articles of the skills and aptitudes required in pharmacy management as per Newcastle-Ottawa scale.

Author(s)	Aim(s)	Methodology	Findings	Skills and aptitudes		
				Conceptual	Human	Technical
Hicks C., et al., (2004) ³² U.S.A. Summary rating: ★★★★★	To evaluate the implementation of a mixed method pharmacy management course, where pharmacy students implement a patient service into an existing pharmacy practice. The business management skills outlined in the course description and objectives was the focus of this research.	Survey: Students (n=62) Evaluation of course. 6 demographic and opinion questions followed by 16 statements rating the course. Reliability analysis via Cronbach’s alpha and validity tested using a rotated factor analysis with extraction.	Pharmacy students can improve their business management skills by implementing novel pharmacy services into a practice as a group project. This model highlighted the skills of leadership, law, teamwork, communication, business planning, problem solving and technology.	Pharmacy operations Problem solving General business management Entrepreneurship Business planning	Communication Leadership Teamwork Self-awareness	Financial analysis Technology Marketing and promotion Prior experience Pharmacy law

<p>Fejzic J., Barker M., (2015)⁵⁶ Australia</p> <p>Summary rating: ★★★★★★</p>	<p>To discover the perceptions of pharmacists and students in regards graduate ‘work readiness’ for pharmacy practice.</p>	<p><u>Interviews:</u> Pharmacist preceptors (n= 92) Pharmacy preceptors (2011, 2014) described opinions on ‘work readiness. Responses recorded in writing. Written descriptions were thematically analysed.</p>	<p>There were similarities between pharmacists’ and students’ opinions, but there was a shift towards graduates being more work ready for business management skills to grow the pharmacy and implement innovative services.</p>	<p>Organisational skills Business planning Problem solving Innovation Pharmacy operations General business management</p>	<p>Adaptability Communication Confidence Customer care Ethics Self-driven Leadership Professionalism Teamwork Empathy Ambition Self-awareness</p>	<p>Prior experience Professional development</p>
<p>Faris R., et al., (2005)⁵⁸ Canada U.S.A.</p>	<p>To investigate the perceptions of USA and Canadian pharmacists on the importance of managerial skills and self-rating of skills.</p>	<p><u>Questionnaire:</u> Likert scale responses (1-5) Questions based on ranking both importance of managerial skills and to rate their own skill levels. Data analysis was performed to detect significant differences</p>	<p>Pharmacists from the USA and Canada had similarities and differences in the perceptions of management skills. Ethical conduct, communication, managing change, teamwork, leadership, pharmacy law, customer care pharmacy</p>	<p>Business planning Pharmacy operations Organisational skills</p>	<p>Adaptability Communication Ethics Leadership Professionalism Self-driven Teamwork</p>	<p>Business acumen Marketing and promotion Professional development Financial analysis</p>

<p>Summary rating: ★★★★★</p>		<p>between the surveys (ANOVA) for each question. A Bonferroni adjustment was applied to the ANOVA significant levels. Post hoc test = Fisher's LSD.</p>	<p>operations and professional development were all considered ranked important. Weakness and potential gaps in pharmacy training also had a similarity across both countries: marketing, business planning, financial analysis and business operations.</p>		<p>Self-awareness Customer care Personnel management</p>	<p>Pharmacy law</p>
<p>Perepelkin J., Dobson R., (2010)⁵ Canada Summary rating: ★★★★★</p>	<p>To investigate pharmacy managers in different ownership models of pharmacy, particularly identifying trends between the parameters of role orientation, role affinity and role conflict.</p>	<p><u>Questionnaire:</u> Pharmacist managers (n=646) The questionnaire was designed around role organisation (scale: unimportant /important), role satisfaction (scale: like / dislike), and role experiences (scale: never / always). Statistically analysed via exploratory factor analysis. Significant differences were calculated using frequencies,</p>	<p>Community pharmacy manager owners have an orientation towards their professional role. Independent pharmacy owners/managers have more affinity to their business role when compared to a corporate pharmacy environment. Most respondents identified being good at business, having a defined business model/structure and working as a team was important. A low level of conflict between</p>	<p>General business management Pharmacy operations Organisational skills Retail operations Inventory management</p>	<p>Professionalism Teamwork Customer care Ethics Personnel management Conflict resolution</p>	<p>Business acumen Financial analysis Marketing and promotion Professional development</p>

		ANOVA and Scheffe post hoc tests.	professional and business role was reported. Clinical roles provided a lot more satisfaction (like) in comparison to management roles (dislike).			
Davies M., et al., (2013) ¹⁷ U.K. Summary rating: ★★★★★	To study the perceptions of community pharmacists, students and academic staff within the U.K. in regard to the content and delivery of business management course in the Mpharm	<u>Questionnaires:</u> Pharmacists (n=600) Academic staff (n=44) Both multiple choice (Likert scale) and open-answer questions. Data analysed by simple frequency tests, cross tabulations and non-parametric techniques.	Pharmacists (84.9%) agree business management skills are employed daily to perform their role. Academic educators (79%) agree business management skills are being prioritised in community pharmacy. Data from the study concluded business management skills are relevant in community pharmacy, should be taught in the curriculum, specifically leadership interpersonal skills and regulation.	General business management Pharmacy operations Problem solving	Communication Ethics Leadership Professionalism Self-awareness Teamwork Personnel management	Business models Financial analysis Pharmacy law Business acumen
Kairuz T., et al., (2010) ⁵⁵	To determine the preparedness of pharmacy	<u>Questionnaire:</u>	A high level of respondents (87.6%) agreed that the degree prepared graduates for practice.	General business management	Communication Confidence	Pharmacy law Professional

<p>New Zealand</p> <p>Summary rating: ★★★★★</p>	<p>graduates to enter a professional career, from the perceptions of pharmacy stakeholders (preceptors, interns and newly registered pharmacists).</p>	<p>Newly registered pharmacists (n=46)</p> <p>Pharmacist Preceptors (n=77)</p> <p>Interns (n=72)</p> <p>16 questions based on the Competence Standards; Likert scale (1-5)</p> <p>Open response for comments was included.</p> <p>Quantitative analysis, using Microsoft Excel pivot tables.</p> <p>Free-text responses analysed both quantitatively and thematically.</p>	<p>Thematic analysis identified improvement was required in professional attitude, communication and management skills. Intern pharmacists perceived themselves less prepared to apply management skills in comparison to the opinion of a preceptor. Graduate students perceived themselves more ready for practice in the areas of professionalism, competence and communication when compared to preceptors.</p>	<p>Organisational skills</p>	<p>Customer care</p> <p>Ethics</p> <p>Self-driven</p> <p>Professionalism</p> <p>Self-awareness</p> <p>Teamwork</p>	<p>development</p>
<p>Thompson D., et al., (2012)⁵⁹</p> <p>U.S.A.</p>	<p>To identify the characteristics pharmacist's value</p>	<p><u>Survey:</u></p> <p>Pharmacists (n=318)</p> <p>Respondents select top 5 most important characteristics from a</p>	<p>Communication, adaptability and professional behaviour were considered an important characteristic across all practices. Some of the</p>	<p>Problem solving</p> <p>Innovation</p>	<p>Adaptability</p> <p>Ambition</p> <p>Communication</p> <p>Empathy</p>	<p>Business acumen</p> <p>Technology</p> <p>Professional development</p>

<p>Summary rating: ★★★★★</p>	<p>when hiring a new pharmacist (Rank top 5 skills).</p>	<p>list of 20. Data analysed in 3 methods; a) proportional frequency by received rank divided by population, b) ‘weighting’ to the rank of each characteristic (percentage), c) the methods of ‘a’ and ‘b’ analysed for sub-populations.</p>	<p>differences between responses were due to the practice site or level of management responsibility that was required.</p>		<p>Self-driven Leadership Professionalism Time management Self-awareness Personnel management</p>	
<p>Alston G., (2017)⁶⁵ U.S.A. Summary rating: ★★★★★</p>	<p>To explore the perspectives of practicing pharmacists in hiring decisions: how attributes of the Centre for the Advancement of Pharmacy Education (CAPE) 2013 influenced those decisions and the associated rank of importance.</p>	<p><u>Questionnaire:</u> Pharmacists (n=3723) Questionnaire divided into 3 sections: demographics, hiring characteristics and CAPE (Centre for the Advancement of Pharmacy Educations) outcomes. Data analysed via statistical analysis software and ranked a value of importance to each of attributes.</p>	<p>Attributes perceived to be the most positive in hiring are: professionalism, communication, problem solver, learner, patient care, self-aware and teamwork. Attributes with the least impact on hiring were: business operations, innovation and marketing. At least 15% of respondents identified attributes lacking in the pool of candidates: innovator, leader, problem solver, communication, marketing,</p>	<p>General business management Retail operations Problem solving Innovation</p>	<p>Communication Empathy Leadership Professionalism Teamwork Self-awareness Customer care</p>	<p>Marketing and promotion Professional development</p>

			business operations, and teamwork and business manager.			
Ram S., et al., (2015) ¹ New Zealand Summary rating: ★★★	To determine the perceptions of pharmacy employers in relation to the knowledge, skills and abilities a pharmacy manager should possess for employment.	<u>Semi-structured interviews:</u> Pharmacy employers (n=12) Interviews conducted by fourth year pharmacy students. Demographic information collected. Eleven questions in total discussing effective management, behaviours, leadership, hiring, training, tertiary education, recent graduates and the future of the profession. Audi-recorded semi-structured interviews transcribed and thematically analysed with major themes emerging.	Pharmacy management was defined as three components: human, technical and conceptual. Human (ethical, empathy, trust) and technical (business acumen, professional development) skills were more required than conceptual skills (larger perspective, general management skills and relationship networking). Problems were identified with the routine use of external management consultants due to the need for balance between a healthcare and business environment.	General business management Organisational skills Problem solving Networking and relationships Larger perspective Pharmacy operations	Ambition Communication Empathy Ethics Leadership Professionalism Teamwork Self-driven Customer care Stress management	Business acumen Professional development
Augustine J., et al., (2018) ²⁰	To determine important business	<u>Focus groups:</u> Pharmacy preceptors	Business management themes that preceptors perceived as	General business management	Ambition Communication	Business acumen Business models

<p>U.S.A.</p> <p>Summary rating: ★★★</p>	<p>management and human resource skills that are required for pharmacy graduates.</p>	<p>(n=4 groups – n=27 participants)</p> <p>Demographics questionnaire followed by open-ended questions on business management regarding the skills that were most critical for new graduates and how to teach these skills.</p> <p>Audio-recorded, transcribed and categorised using a data dictionary.</p>	<p>being most important were communication, business skills, decision making, time management, conflict resolution, leadership, professionalism, personnel management, and information technology.</p>	<p>Organisational skills</p> <p>Business planning</p> <p>Problem solving</p> <p>Innovation</p> <p>Larger perspective</p>	<p>Conflict resolution</p> <p>Customer care</p> <p>Empathy</p> <p>Leadership</p> <p>Professionalism</p> <p>Self-awareness</p> <p>Teamwork</p> <p>Time management</p> <p>Personnel management</p> <p>Stress management</p>	<p>Financial analysis</p> <p>Marketing and promotion</p> <p>Professional development</p> <p>Technology</p>
<p>Davies J., (2013)⁴⁷</p> <p>U.K.</p> <p>Summary rating: ★★★</p>	<p>To describe how pharmacists spent their time using a work sampling method, with the view of expanding the pharmaceutical services currently</p>	<p><u>Quantitative:</u></p> <p><u>Fixed-interval work sampling:</u></p> <p>Pharmacists (n=10)</p> <p>Observers recorded activities of a pharmacist every minute and recorded into 18 activity codes. Data analysed by calculating the</p>	<p>Pharmacists spend the majority of their time assembling and labelling medications. The shift to a patient focus is not evident as there is minimal time recorded on this role. Pharmacists recorded to perform many management roles including;</p>	<p>Inventory management</p> <p>General business management</p> <p>Retail operations</p> <p>Networking and relationships</p> <p>Problem solving</p>	<p>Communication</p> <p>Personnel management</p> <p>Professionalism</p> <p>Customer care</p> <p>Leadership</p>	<p>Financial analysis</p> <p>Marketing and promotion</p>

	provided by the profession.	number of observations for a single activity, then expressing them as a proportion of the total number of observations.	communication, staff training, teamwork and financial analysis.			
Ottewill R., et al., (2000) ⁵⁰ U.K. Summary rating: ★★★	To investigate the core skills required for management in community pharmacy and highlight potential training methods to acquire the skills.	<u>Semi-structured interviews:</u> Pharmacists (owner or manager n=6) Interviews questions explored what skills community pharmacists need to be successful; relationships between professional and management competencies in pharmacists; developing the required skills in pharmacists and the future of pharmacy. Interviews transcribed in real time. Transcripts reduced and analysed based on coding and clustering themes.	No relationship between managerial training and small and medium enterprise business performance. Skills required for pharmacy management defined into a framework: strategic level and operational level. Equipping pharmacists with managerial skills cannot be at the expense of clinical expertise. Professional and management need to be mutually recognised in the curriculum and expose student to negotiation, risk taking, strategy and general management core skills.	Inventory management Pharmacy operations General business management Retail operations Organisational skills Business planning Problem solving Networking and relationships Innovation Entrepreneurship Retail operations Larger perspective	Adaptability Ambition Communication Conflict resolution Customer care Ethics Leadership Self-driven Personnel management Professionalism Teamwork	Business acumen Financial analysis Marketing and promotion Pharmacy law Professional development

<p>O'Brien E., et al., (2017)⁵¹ U.S.A.</p> <p>Summary rating: ★★★</p>	<p>To compare survey responses regarding desirable skills in new pharmacists; from perspectives of pharmacists and students.</p>	<p><u>Survey:</u> Pharmacists (n = 147) Students (n = 77) Likert scale and open questions. Analysed via descriptive statistics. Nominal data analysed with Chi-square tests. Fisher exact test used to compare qualitative open question responses.</p>	<p>Both pharmacists and students agree on essential skills required for pharmacy. Communication skills was a notable difference in opinion and improvement in the curriculum recommended.</p>	<p>General business management</p>	<p>Communication Conflict resolution Ethics Professionalism Time management</p>	<p>Pharmacy law</p>
<p>Hermansyah A., et al., (2012)⁶⁴ Indonesia</p> <p>Summary rating: ★★★</p>	<p>To determine the professional and non-professional roles of community pharmacists</p>	<p><u>Questionnaire:</u> Pharmacists (n=30) Descriptive, cross sectional study design. Questionnaire covered demographic information, professional and non-professional work. Data analysis to provide descriptive results and completed with Wilcoxon signed rank test (calculating</p>	<p>Business management roles of pharmacists include communication, professionalism, general management, marketing and promotion, personal management and networking. It was concluded that more emphasis and time was required to be allocated to these roles.</p>	<p>General business management Pharmacy operations Retail operations Networking and relationships</p>	<p>Communication Personnel management Professionalism Customer care</p>	<p>Marketing and promotion Financial analysis Professional development</p>

		difference between ideal and actual time).				
Jacobs S., et al., (2013) ⁶⁶ U.K. Summary rating: ★★★	To explore the structures for identifying and managing performance in U.K. community pharmacists.	<u>Semi-structured interview:</u> Pharmacy managers (n = 20) <u>Interviews</u> were approximately 30 minutes duration, audio recorded, transcribed and thematically analysed using a coding frame.	Business performance was prioritised, along with some aspects of professional performance. Larger organisation pharmacies had mechanisms to identify performance concerns, with the ability to provide support and training.	General business management Pharmacy operations	Self-driven Personnel management Professionalism Teamwork Communication Time management Stress management Leadership Self-awareness	Professional development
O’Sullivan T., et al., (2017) ⁶⁷ U.S.A. Summary rating: ★★★	To design an alternate curriculum to prepare pharmacy students to be a pharmacist-in-charge.	<u>Semi-structured interview:</u> Pharmacy stakeholders (n=11) <u>Focus groups:</u> Pharmacy stakeholders (n=11 groups – 31 participants) Audio-recorded interviews and focus groups were transcribed	The expectation of employers, to have management competent pharmacists can be met with the implementation of an experimental education curriculum.	General business management Pharmacy operations Problem solving Networking and relationships	Communication Ethics Self-driven Leadership Time management Professionalism Empathy Adaptability	Financial analysis Pharmacy law

		and analysed for common themes needed in community pharmacy training.		Organisational skills Innovation	Customer care	
Sealy, P., et al., (2013) ⁶⁸ West Indies Summary rating: ★★★	To explore pharmacist stakeholder's views of recent graduate's performance in the workforce and identify curricula deficiencies.	<u>Questionnaire:</u> Pharmacy stakeholders (n=10); Likert scale (1-5) Analysed with one-sample t tests, with an hypothesised mean value of 2.5. <u>Focus groups:</u> Pharmacy stakeholders (n=2 groups – 11 participants) Videotaped and transcribed. Summary of group discussions determined by consensus.	Stronger business management skills in comparison to clinical knowledge. Strengths in attitude, teamwork, adaptability and communication. Weakness in ability to apply theoretical knowledge, leadership and teamwork.	Inventory management General business management Organisational skills Problem solving Innovation	Adaptability Ambition Communication Empathy Ethics Self-driven Leadership Professionalism Teamwork Time management Self-awareness	Technology Pharmacy law Professional development

<p>Latif D., (2002)¹⁶ U.S.A.</p> <p>Summary rating: ★</p>	<p>To identify and discuss a teaching framework that could be employed to educate pharmacy students on business management skills. To evaluate current knowledge of effective management skills, and discuss innovative methods of teaching pharmacy students.</p>	<p><u>Commentary:</u> A review of the literature on effective management skills in addition to providing the description of a model to teach pharmacy management in the curriculum.</p> <p>Topics discussed within the commentary are the management skills pharmacists require, how to gain the skills/behaviours for effective management and how tertiary educators can improve these revealed skills/behaviours in pharmacy students</p>	<p>All pharmacists will be placed in a position of management. Inclusion of management skills training in the curriculum will not only benefit to the team they work with, but to the student themselves. In order for students to learn management skills, more time in the curriculum will need to be allocated then current business teaching methods.</p>	<p>Inventory management Organisational skills Business planning Problem solving Networking and relationships Larger perspective Entrepreneurship</p>	<p>Adaptability Ambition Communication Conflict resolution Empathy Leadership Affinity to role repetitiveness Self-driven Professionalism Stress management Self-awareness Teamwork Time management Confidence Personnel management</p>	<p>Financial analysis Technology</p>
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<p>Singleton J. Nissen L., (2014)²⁵ Australia</p> <p>Summary rating: No stars</p>	<p>To investigate alternative business models for independent community pharmacies to remain financially successful in a hypercompetitive environment.</p>	<p><u>Commentary:</u> The Australian community pharmacy market is deemed hypercompetitive. Small and independent community pharmacy management need to implement and deliver professional health services to remain financially viable. Expertise in business management is the blueprint to display a difference in the marketplace and deliver the right clinical services to remain successful into the future.</p>	<p>Pharmacy owners and managers can differentiate their business strategy in the market via targeting cognitive professional services (CPS). Pharmacy owners' primary training is healthcare and privileging the business skills to adapt and innovate can be daunting. Communication, innovation, leadership, market research and a clear differentiation in the strategy of the business operations are fundamental attributes a pharmacy manager require to be successful in a hypercompetitive environment.</p>	<p>General business management Innovation Problem solving Pharmacy operations Business planning</p>	<p>Adaptability Communication Leadership Professionalism Teamwork Time management Customer care</p>	<p>Business acumen Financial analysis Marketing and promotion Professional development Technology Business model diversity</p>
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Table 4: Pharmacy students’ perceptions of skills and aptitudes required in pharmacy management. Summary rating provides an overall assessment of published articles of the skills and aptitudes required in pharmacy management as per Newcastle-Ottawa scale of assessment⁶³, see Table 6 for more details.

Author(s)	Aim(s)	Methodology	Findings	Skills and aptitudes		
				Conceptual	Human	Technology
Bullock, K.C., Horne, S., (2019) ⁶⁹ U.S.A. Summary rating: ★★★★★	To design, teach and evaluate a didactic Doctor of Pharmacy (PharmD) course to improve the skills of students in both clinical and business management.	<u>Surveys:</u> Students (n=18) Likert scale responses (1-5) and open-ended questions Wilcoxon signed-rank test for significant difference between pre-post responses	Comparing students’ skills and knowledge pre-and post-test; student ratings were significantly higher for communication, leadership and legal considerations. There was limited change in the field of ‘business management’.	General business management Pharmacy operations	Communication Customer care Ethics Leadership Self-driven	Financial analysis Marketing and promotion Pharmacy law Professional development
Rollins B., et al., (2012) ⁷⁰ U.S.A.	To determine the effect of didactically teaching 17 pharmacy management topics to students via pre-	<u>Surveys:</u> Students Pre-course (n=210) Post-course (n=218)	Pharmacy students perceived their knowledge of business management t improved after didactic learning of the material. Across all 17 business	Inventory management General business management Pharmacy operations	Personnel management	Financial analysis

Summary rating: ★★★★★	and post-course self-test evaluation.	Likert scale responses (1-5); Pre- and post-course survey. Analysis via mean value and standard deviation.	management topics, students responded they improved significantly in their knowledge.			
Slavcev R., et al., (2016) ⁴ Canada Summary rating: ★★★★★	To design a pharmacy business education program to meet current practice requirements in business, strategic management, leadership and entrepreneurial training.	<u>Surveys:</u> Course evaluation by students (n=53) Pre-and post-course surveys. Statistical analysis of pre- and post-course results calculated and represented as a percentage.	A mixed method business program can positively improve pharmacy student's knowledge, skills and attitude towards pharmacy business management.	General business management Organisational skills Business planning Problem solving Entrepreneurship Innovation	Adaptability Ambition Communication Confidence Self-driven Leadership Professionalism	Financial analysis Prior experience
Gatwood J., et al., (2018) ⁵³ U.S.A.	To evaluate the perceptions of pharmacy students completing a pharmacy business planning project being	<u>Mixed method:</u> <u>Surveys</u> (n=121) Students	Students approached the business project by a traditional method (design a pharmacy-related business plan in a team of students),	Business planning Problem solving Larger perspective Innovation	Adaptability Communication Confidence Self-driven	Professional development

<p>Summary rating: ★★★★★</p>	<p>undertaken from two separate methods (traditional and experimental).</p>	<p>Likert scale (1-5) questions. Differences in responses analysed by Mantel-Haenszel test for linear trends. <u>Focus groups:</u> (n=34 participants) Students who completed the experimental project invited in a focus group. Participants discussed project choice, likes/dislikes and the perceived opinions on the experience. Audio-recordings transcribed and entered into Nvivo. Thematic analysis conducted</p>	<p>or an innovate method (design a pharmacy-related business plan paired with a pharmacy focus firm). Students from the experimental approach responded with a better understanding of business management, a greater ability to connect management concepts in relation to professional practice and gained benefit from a real-world experience.</p>	<p>Entrepreneurship</p>	<p>Teamwork Time management</p>	
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		using open coding and axial coding, to generate major themes.				
Fejzic J., Barker M., (2015) ⁵⁶ Australia Summary rating: ★★★★	To discover the perceptions of pharmacists and students in regards graduate ‘work readiness’ for pharmacy practice.	<u>Surveys:</u> Students (n=71) Pharmacy students (2011) responded to a ‘work ready’ survey in lecture. The survey was pre-set criteria for students to answer. Data analysis via tabulating the pre-set criteria and associated frequency of responses (most to least).	Similarities between pharmacists’ and students’ opinions, but there was a shift towards graduates being more work ready for business management skills to grow the pharmacy and implement innovative services.	Organisational skills Problem solving Pharmacy operations	Communication Adaptability Ambition Customer care Empathy Ethics Self-driven Professionalism Teamwork	Prior experience Professional development
Davies M., et al., (2013) ¹⁷ U.K.	To study the perceptions of community pharmacists, students and academic staff within the U.K. in regards to the content and	<u>Questionnaire:</u> Students (n=441)	Majority of pharmacy students (92.8%) agree business management will be required and impact their future. Data from the	General business management Pharmacy operations	Communication Ethics Leadership Teamwork	Business models Financial analysis Marketing and promotion

<p>Summary rating: ★★★★★</p>	<p>delivery of business management course in the Mpharm degree.</p>	<p>Both multiple choice (Likert scale) and open-answer questions.</p> <p>Data analysed by simple frequency tests, cross tabulations and non-parametric techniques.</p>	<p>study concluded business management skills are relevant in community pharmacy, should be taught in the curriculum, specifically leadership interpersonal skills and regulation.</p>	<p>Inventory management</p>	<p>Personnel management Self-awareness Professionalism</p>	<p>Pharmacy law</p>
<p>Latif D., (2004)¹⁸ U.S.A.</p> <p>Summary rating: ★★★</p>	<p>To design and teach a management skills course to third year pharmacy students and evaluate the feedback on the improvement in their skills.</p>	<p><u>Survey:</u> Students (n=65) Diverse evaluation of students' managerial skills (learning and application). Pre- and post- course survey, with results statistically analysed for improvement. Student feedback in comments, with analysis.</p>	<p>Student pre- and post-course survey responses regarding improvement in skills such as problem solving, conflict resolution, personal management and delegation did not significantly change. The students responded to an increased ability to identify their weaknesses and know how to improve a particular area of underperformance.</p>	<p>General business management Problem solving</p>	<p>Communication Conflict resolution Empathy Leadership Personnel management Self-awareness Teamwork Time management</p>	<p><i>None included</i></p>

<p>O'Brien E., et al., (2017)⁵¹ U.S.A.</p> <p>Summary rating: ★★★</p>	<p>To compare survey responses regarding desirable skills in new pharmacists; from the perspectives of pharmacists and students.</p>	<p><u>Surveys:</u> Pharmacists (n = 147) Students (n = 77)</p> <p>Survey consisted of Likert scale answers and open questions.</p> <p>Analysed via descriptive statistics. Nominal data analysed with Chi-square tests. Fisher exact test used to compare qualitative responses.</p>	<p>Both pharmacists and students agree on essential skills required for pharmacy. Communication skills was a notable difference in opinion and improvement in the curriculum recommended.</p>	<p>General business management</p>	<p>Communication Conflict resolution Ethics Professionalism Time management</p>	<p><i>None included</i></p>
<p>Bloom T., et al., (2017)⁵⁷ U.S.A.</p> <p>Summary rating: ★★★</p>	<p>To explore the impact of pharmacy work experience and the potential benefits to pharmacy students.</p>	<p><u>Surveys:</u> Student (n=293) Pharmacy students in all 4 years invited to participate. Demographic questions were included.</p>	<p>Pharmacy schools educate students didactically to prepare them for a professional pharmacy career. Prior pharmacy work experience to tertiary education may increase the</p>	<p>Problem solving</p>	<p>Communication Ethics Professionalism Teamwork Self-awareness</p>	<p><i>None included</i></p>

		<p>Additional questions surrounded interpersonal tasks, generic attributes, and professional skills.</p> <p>Student responses analysed with descriptive statistics to identify significance between pharmacy work experience and a set list of professional skills</p>	<p>students' professional identity. A higher rating in communication and teamwork appeared to be strongly related to prior work experience.</p>			
<p>Patterson B., et al., (2013)⁷² U.S.A.</p> <p>Summary rating: ★★★</p>	<p>To design and teach pharmacy students an elective course on leadership skills using graduate mentors.</p>	<p><u>Qualitative: Thematic analysis of reflection papers:</u></p> <p>Students (n=74)</p> <p>Thematic analysis was based on required elements (e.g., relationship building)</p>	<p>An innovative and cost-effective method of teaching leadership skills to students can be achieved by using post-graduate mentors. Students were positive about the learning experience. Students could differentiate between certain styles of leadership and demonstrated a</p>	<p>Problem solving</p>	<p>Self-driven Leadership Self-awareness Professionalism</p>	<p><i>None included</i></p>

		using open descriptive coding.	methodical approach to continual professional development.			
Zgarrick D., Talluto B., (1997) ⁵² U.S.A. Summary rating: ★★	To further student's knowledge and application of pharmacy business management via a rotation system working with pharmacy managers.	<u>Questionnaire:</u> Students (n=14) Evaluation of educational learning. Likert scale responses (1-5) of pre-set criteria. Data analysis via means-based test with standard deviation.	Student evaluation revealed the rotation system between pharmacy management practice was a positive experience. Noted that broad business management skills and application were lacking, rather one or two management areas were prioritised.	Pharmacy operations Organisational skills Business planning Retail operations	Personnel management	Financial analysis Marketing and promotion
Evans C., et al., (2010) ⁷¹ U.S.A. Summary rating: No stars	To determine student learning of the knowledge and skills of conflict resolution, customer service, retail theft and communication through actual events from a community pharmacy.	<u>Qualitative – case study:</u> Interactions from a pharmacy setting designed as novel learning tool enhance students' business management skills.	Evaluation of a real pharmacy case is a method that students can learn and understand how to best apply business management skills in a relatable setting.	Retail operations General business management	Communication Conflict resolution Customer care Professionalism Time management Empathy	<i>None included</i>

		Interactions transcribed from actual events that transpired in a community pharmacy. Primarily focussed on conflict resolution and how to approach resolving issues that arise from the case study.				
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Table 5: Summary of the assignment of all identified management skills and aptitudes to a reduced set of terms. Proportions were calculated as the number of occurrences divided by the total number of studies (Total publications: Students=12, Pharmacy stakeholders=19, Note: 3 publications overlap and are included in both the student and pharmacy stakeholder counts).

Management skills and aptitudes identified from studies	Management skill or aptitude	Student total	Pharmacy stakeholder total	Student proportion	Pharmacy stakeholder proportion
Conceptual					
Generic business management, human resources, management, materials management, evaluation, rosters, assigning tasks, dealing with mail, filing, clerical work, merchandising, having business management skills, knowing how to get goals achieved, theft prevention and legal action.	General business management	7	16	0.58	0.84
Problem solving and critical thinking, decision making, reasoning, methodological, troubleshooting.	Problem solving	6	13	0.50	0.68
Operations specific to pharmacy, opening/closing procedures, specific requirements for community pharmacy operation, clinical expertise and knowledge to perform the role, knowledge of the working of the industry.	Pharmacy operations	5	12	0.42	0.63
Organisational skills, planning, logical systems, goal setting, clear objectives.	Organisational skills	3	10	0.25	0.53
Innovation, creative ideas, adapt to change, imaginative.	Innovation	2	8	0.17	0.42

Business planning, planning new pharmacy operations/viability, expansion/ growth succession planning, short and long-term planning, disaster planning, facilities and equipment planning, construction, renovations, strategic planning, succession planning.	Business planning	3	7	0.25	0.37
Inventory management, dispensary stock control, front store stock control, merchandising.	Inventory management	2	6	0.17	0.32
Relationship building, health professionals, political level.	Networking and relationships	0	6	0.00	0.32
Retail operations, traffic flow, theft, stock levels, inventory layout, merchandising.	Retail operations	2	5	0.17	0.26
Wholistic perspective, bigger picture.	Larger perspective	1	4	0.08	0.21
Entrepreneurship, risk verse benefit of new opportunities.	Entrepreneurship	2	3	0.17	0.16
Human					
Communication with patients, staff and professional, active listening, use of language, negotiation, writing, cultural sensitivity, effective listening, peer to peer, manager to subordinate, culturally aware.	Communication	9	18	0.75	0.95
Professionalism, behaviour, integrity, trust, attitude, mannerism, punctuality, not being arrogant or overconfident.	Professionalism	7	18	0.58	0.95

Leadership and a desire to do so, assertiveness, confidence power and influence, respect, getting the best out of people and acknowledging their strengths, empower people, mentoring.	Leadership	5	15	0.42	0.79
Teamwork/ delegation, team builder.	Teamwork	5	14	0.42	0.74
Customer service, customer care, provider mentality, patient advocate.	Customer care	3	12	0.25	0.63
Self-awareness, strengths and weaknesses, knowing when to ask for help/ limitations, take responsibility for evaluation of one's own work, social intelligence, competitive, reflective.	Self-awareness	4	11	0.33	0.58
Personnel management, personable, staff training, hiring, education of work experience students, educator, motivation, mentoring, dispensary staff, front of store staff, directing people, coaching, growth and development.	Personnel management	4	10	0.33	0.53
Ethics, act and behave in an ethical manner, have in inherent sense of right and wrong, environmental impact conscious.	Ethics	5	10	0.42	0.53
Initiative/self-motivation, independence/ proactive, enthusiasm, flair, right attitude, passion for pharmacy, positive, dedicated.	Self-driven	5	10	0.42	0.53

Adaptability, change agile, make change effectively.	Adaptability	3	8	0.25	0.42
Empathy towards staff, customers and health professionals.	Empathy	3	8	0.25	0.42
Time management, efficiency.	Time management	4	8	0.33	0.42
Ambition -motivation, risk taking, competitiveness, desire to succeed within the profession.	Ambition	2	7	0.17	0.37
Conflict resolution, conflict management, conflict between professional and non-professional roles, company policy verse professional duty, staff conflict, role conflict, humility, conflict handling for specific situations.	Conflict resolution	3	5	0.25	0.26
Stress management, deal with unpleasant situations without influencing one's emotions, work-life balance.	Stress management	0	5	0.00	0.26
Confidence, impose wishes, accept authority and deliver competently, trust their knowledge and skills, self-confidence.	Confidence	2	3	0.17	0.16
Job repetitiveness.	Affinity to role repetitiveness	0	1	0.00	0.05
Technical					
Remaining up to date, professional development, maintaining a recency of knowledge from literature, career progression, evaluating and improving management skills, reading the professional literature, using	Professional development	3	13	0.25	0.68

mentors and experts to improve, willingness to learn, growth and development.					
Financial analysis, wages, cash on hand, tax returns, reporting, make decisions based on financial projections, profit versus service, accounts, budgets, assessment of short- and long-term position, cash flow.	Financial analysis	5	11	0.42	0.58
Marketing and promotion, advertising.	Marketing and promotion	3	9	0.25	0.47
Business acumen, business sense	Business acumen	2	2	0.17	0.11
Pharmacy law, pharmacy regulations, regulatory requirements, accreditations.	Pharmacy law	4	10	0.33	0.53
Technology, software, understanding and competent with computer hardware/software, understand when to take advantage of technology advancements in the industry (robotic dispensing), computer software techniques.	Technology	0	6	0.00	0.32
Business models, independent, chain pharmacy, banner group, compounding, understanding between different business structures.	Business model diversity	1	3	0.08	0.16
Work experience opportunities in pharmacy practice, previous experience in management, placement experience in management, life experience.	Prior experience	2	2	0.17	0.11

Table 6: Assessment of published articles of the skills and aptitudes required in pharmacy management as per Newcastle-Ottawa scale of assessment⁶³.

		Number of articles		References for articles	
		Stakeholders	Students	Stakeholders	Students
Selection	★★★★	0	0		
	★★★	8	1	5,17,32,55,56,58,59,65	17
	★★	9	9	1,20,47,50,51,64,66,68,74	4,18,51,53,56,57,69,70,72
	★	1	1	16	52
	No stars	1	1	25	71
Comparability	★★	0	2		69,70,
	★	3	2	32,56,58	4,53
	No stars	16	8	1,5,16,17,20,25,47,50,51,55,59,64-66,68,74	17,18,51,52,56,57,71,72
Outcome	★★★	0	0		
	★★	2	5	32,56	4,53,56,69,70
	★	15	6	1,5,17,20,47,50,51,55,58,59,64-66,68,74	17,18,51,52,57,72
	No stars	2	1	16,25	71
Summary rating	★★★★★★	2	2	32,56	69,70
	★★★★★	1	2	58	4,53
	★★★★	5	2	5,17,55,59,65	17,56
	★★★	9	4	1,20,47,50,51,64,66,67,68	18,51,57,72
	★★	0	1		52
	★	1	0	16	
	No stars	1	1	25	71

2.5 Implications

This review revealed that both pharmacy stakeholders and students were able to identify 36 skills/aptitudes required for business management in community pharmacy. These skills/aptitudes were categorised under the business management framework as either conceptual, human or technical.^{16,62} The top 5 frequently identified management skills/aptitudes were communication, professionalism, general business management, leadership and teamwork. Four out of these five

skills/aptitudes are categorised under the human domain of the business management framework. These results align with the findings across other medical disciplines, where the requirement to integrate human skills into clinical practice is a prominent focus.⁷⁴ Effective pharmacy management in the skills/aptitudes identified in this review, is the paradigm shift for the community pharmacist to transition into a professional healthcare clinical focussed role.^{8,14,16,22-28,29-31,60,74}

A common perspective emerging is that pharmacists have limited to no training in business management and are under skilled for their role.^{3,66} All community pharmacists, whether a dispensing pharmacist, owner or manager, will have managerial elements within their health care roles.^{3,16} The duty of the pharmacist will dictate the emphasis placed on each component of the business framework, nevertheless, all skills/aptitudes identified will be to some extent required by every community pharmacist. Whist this review has revealed characteristics required for pharmacy management, there is a notable trend that students and newly registered pharmacists do not have the confidence in transitioning their undergraduate management training into a community pharmacy setting.^{41,57,69,70,75} This knowledge reinforces the fact that 76% of post graduate pharmacists would have chosen business management as an elective course during their undergraduate study.¹⁷ The profession requires early career community pharmacists to be competent in the ability to perform management skills of the human and technical domain and this knowledge needs to be integrated into the tertiary education curriculum.^{17,76-78}

It is evident from this study that pharmacy students recognise the role a community pharmacist requires managerial skills. It is interesting to learn that students did not identify 5 of the business management skills/aptitudes; business acumen, technology, networking and relationship building, stress management and affinity to role repetitiveness. Potentially, students were unable to recognise these skills due to an absence from the curriculum or due to the studies not listing them as a pre-determined skill/aptitude for students to identify/rank. Recent literature supports that increased financial pressure and strain on community pharmacy profitability has expanded the role and workload of a community pharmacist.^{16,23,25,79,80} The increase in workload and pressure to dispense high volumes of prescriptions (role repetitiveness), in addition to the expectation to implement and profit from expanded remunerated clinical services (business acumen, technology) has resulted in a more stressful environment (stress management) for community pharmacists.^{23,46,56,79,81} Potentially this finding is due to students being unaware that these 5 management skills/aptitudes have become recently desirable for community pharmacists due to the expanding roles of the profession.

A primary reason community pharmacists embark on a career in pharmacy is due to the human component of the profession; the caring nature and patient focussed role.⁸² There is some evidence

that undergraduate students within the degree have interest in learning the required management skills for community pharmacy, with 64% of undergraduate students having an interest in business management¹⁷. Students and newly registered pharmacists acknowledge that the profession requires predominantly human domain business skills/aptitudes, but lack confidence applying them in real-world environments.^{19,78,83,84} This would substantiate recent findings that students respond positively and gain more confidence from innovative multi-method learning of pharmacy business management.^{4,18,19,32,42,53,72} Overall this may indicate a need to change the recruitment strategy for eligible pharmacy undergraduates and ensure these business management qualities are innately possessed by students or have a desire/affinity to developing these skills within the degree.^{7,85}

The findings of this study are significant for the community pharmacist profession, the undergraduate pharmacy curriculum, the university recruitment of students and future research in the pharmacy management field. Expansion of the community pharmacist role has revealed the profession requires a diversity of business skills, in addition to more effective business management training.^{7,11,17} This review exposed the role of the community pharmacist requires a dominance of human domain management skills. Without effective business management skills, the development and transition of the profession towards a patient focussed, clinical service-based role is more challenging. Community pharmacists, particularly recent graduates, require more training to improve confidence in effective business management skills.¹⁹ Universities offering a pharmacy degree should consider including business management as a core component of the curriculum, nurturing the skills/aptitudes found in this review. Modifying the pharmacy recruitment program to attract business minded students into the degree, particularly those with an affinity for human skills, ensures the next generation of community pharmacists will integrate effective business management into the profession.⁸⁵ Future research on pharmacy management is necessary to identify the complete range of business management skills/aptitudes required for a community pharmacist and the best method of teaching those skills/aptitudes in the undergraduate curriculum.

Strengths and limitations

There are limitations to our understanding of pharmacy stakeholder and student perceptions of business management skills. There is a dearth of literature designed to discover and explore the management skills required for a community pharmacist. Only 4 studies^{1,20,50,58} included in this review, all pertaining to stakeholders, investigated the skills required in pharmacy management. All other stakeholder publications did not have the primary aim to define the business skills required by a community pharmacist.^{5,16,25,32,47,51,55,56,59,64-68} Studies are therefore limited in their ability to reveal the complete management skills/aptitudes for a community pharmacist with any certainty. Publications

regarding student's perceptions of pharmacy management are also limited by design and purpose. Student studies focussed on improving the quality of graduating pharmacists by identify gaps in student's knowledge and determining the best teaching methods.^{51,51,56,18,19} No studies found in this review contained open-ended questions regarding a pharmacy student's perceptions of the skills required for pharmacy management. Students opinions were typically identified from survey questions relating to work readiness, evaluation of pharmacy management training courses and business management knowledge.^{52,73,17,56}

2.6 Conclusion

The community pharmacist has a dual natured role, blended between healthcare provider and business management. This scoping review illuminated the diversity of business management skills and aptitudes perceived required for community pharmacy, with a clear dominance from the human domain. Industry vision for the profession is to embrace the expanding clinical roles of the community pharmacist, thus placing an increased emphasis on effective business management skills. Successful industry transition requires training to allow the profession to be competent in the business management skills/aptitudes identified in this review.

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3 CHAPTER 3 PHARMACY STUDENTS' PERSPECTIVE ON BUSINESS MANAGEMENT FOR THE COMMUNITY PHARMACIST

Employing an explanatory sequential mixed-methods study design to determine pharmacy student perceptions on the business management role of the community pharmacist was the next phase of this study, which comprises Chapter 3. This involved dissemination of a questionnaire to pharmacy students in year 1 and year 4 from JCU and UTAS, with responses statistically analysed. Focus groups were conducted to further explain student responses, with audio-recordings transcribed and data analysed. Chapter 3 was published in the American Journal of Pharmaceutical Education. [Davey BJ, Lindsay D, Cousins J, Glass BD]. Pharmacy students' perspective on business management for the community pharmacist. *AJPE*, (2023) 100563, Doi: <https://doi.org/10.1016/j.ajpe.2023.100563>

3.1 Abstract

Objective

Pharmacy students are important future stakeholders in community pharmacy, with business management an integral part of practice. This study thus aims to determine pharmacy students' perceptions of the business management skills required by the community pharmacist and how these skills should be taught within the pharmacy curriculum.

Methods

An explanatory sequential mixed-method design involved the administration of an online survey to pharmacy students in years 1 and 4 across 2 Australian universities, followed by focus groups to gather in-depth perceptions. Survey responses were analysed using descriptive statistics, and associations between years 1 and 4 and outcomes were explored. A hybrid approach of inductive and deductive thematic analysis was utilised for focus group transcriptions.

Results

Fifty-one pharmacy students responded to an online survey with 85% agreeing that business management is an essential part of the community pharmacist's skillset. Students indicated a preference for learning management during their community pharmacy placement, university workshops, and via mentorship. Although thematic analysis of student focus groups revealed a preference for learning clinical skills during their university education, business management was also

recognised as important. Enthusiasm for management, however, could be increased by exposure to mentors who display leadership and are passionate about business management.

Conclusion

Pharmacy students considered business management as intrinsic to the role of community pharmacists and recommended a multi-method teaching approach to learning these skills. These findings could be utilised by pharmacy educators and the profession to inform both the content and the delivery of business management in pharmacy curricula.

3.2 Introduction

An expanding scope of professional practice has presented opportunities for community pharmacists to transform from 'retailers' to healthcare professionals^{1,2}. Various studies have shown that community pharmacists are trained to deliver services beyond the dispensary to improve patient health outcomes and potentially reduce government healthcare expenditure³⁻⁵. However, as well as their role as healthcare professionals, the community pharmacist operates in a retail business environment and their expanding scope of practice requires competence in business management⁶⁻⁸. There is a dearth of literature investigating the business management skills that are required by the community pharmacist and the best method(s) of teaching these management skills within the pharmacy curriculum. The evidence available shows that community pharmacists are undertrained in business management, which may have contributed to countries such as Australia remaining dependant on a business model dispensing high volumes of decreasingly profitable prescriptions⁹⁻¹¹.

Identifying the business management skills that are required for the community pharmacist and how to teach these skills within the education curriculum is beneficial to deliver more work-ready graduate students¹². According to the National Competency Framework for pharmacists in Australia, there is a requirement to possess leadership and management skills, which begins with training during the pharmacy program^{13,14}. Studies exploring students' perceptions of pharmacy management in the degree programs have primarily aimed to identify knowledge gaps, the work readiness of recent graduates, and to evaluate the success of business management training courses¹⁵. Whilst this research is beneficial, these studies have not been designed to identify the business management skills students perceive to be required for the role of a community pharmacist. Although the literature is limited on community pharmacist business management, some existing studies exploring the field have employed Katz's managerial framework¹⁶ to organise skills. Investigations by Latif¹⁷ utilised Katz's framework to categorise managerial skills under the domains of conceptual, human, or technical skills.

This framework was subsequently embraced by Ram¹⁸ to categorise skills that employers recruiting pharmacist managers require.

Similarly, student perceptions on the appropriate method(s) for effective delivery of business management within the pharmacy curriculum has been underexplored. There is evidence to support that there is no single 'best' approach to teach students, rather the method(s) of content delivery requires tailoring to both the discipline and student¹⁹. This is true too for the learning preference of undergraduate pharmacy students, where teaching may be more effective by developing curricula that deliver a multi-method approach to education, rather than the traditional 'one size fits all' content delivery model^{15,20}. Multi-method or innovative teaching as compared to traditional didactic approach of structured classroom lectures²¹, highlights the student's role as more important. Recent studies investigating teaching methods and the effect on student outcomes, found that students responded more positively to a multi-method teaching approach when undertaking pharmacist business management training¹⁵. Investigating the business management skills required for the community pharmacist and the method of teaching to enhance student learning is timely as the scope of community pharmacy practice evolves². This study aims to explore the perceptions of pharmacy students of business management for the community pharmacist, including the skills required and preferred teaching method(s) within the curriculum.

3.3 Methods

A mixed-methods sequential explanatory design was used²² with phase one (Quantitative) consisting of an online survey and phase two (Qualitative) using focus groups to further explore survey findings.

3.3.1 Phase 1: Questionnaire

The managerial skills/aptitudes identified in a scoping literature review on business management skills required for the community pharmacist¹⁵ were used to inform the design of the online questionnaire, which was delivered on Qualtrics²³ (Appendix C). The online questionnaire included sections of participant demographics, students' perceptions of business management in the pharmacy curriculum, business management skills/aptitudes required for the community pharmacist, and best methods to teach business management skills/aptitudes in the curriculum (Appendix D). At the end of the questionnaire, students were invited to express interest in phase 2 of the study by providing their email address to the researchers. After completion of a pilot questionnaire, a response evaluation tool, the research team employed face validity and changes were made until it was agreed that the questionnaire was a valid measure of the concept being explored.

To ensure robustness of questionnaire data, two different year levels (1 and 4) at two different universities (James Cook University (JCU) and University of Tasmania (UTAS)) in different states within Australia were targeted for student recruitment, which occurred by email with the support of the respective Heads of School, between April-October 2021. The student email contained a cover letter, information sheet (Appendix E) and invitation to complete the online questionnaire, which included obtaining informed consent (Appendix F). The exposure to business management differed across universities. The JCU pharmacy program includes business management in year 1, covering leadership and professionalism, and a more in-depth education in year 4, where students learn via lectures and a managerial case study. JCU students are required to undertake 6 weeks of placement in year 3, 9 weeks of placement in year 4, which varies between 9-12 weeks of community pharmacy placement depending on the student. The UTAS pharmacy program does not have business management in year 1. Human domain management skills are integrated throughout pharmacy practice units in the degree, with specific pharmacy management modules and lectures supporting a groupwork management assignment in year 4. Placement occurs for 3 weeks in year 3 of the degree and 9 weeks in year 4, with 4 weeks specifically in community pharmacy.

Student responses were downloaded from Qualtrics and analysed using IBM SPSS Statistics V27²⁴. Descriptive statistics were used to explore the responses of pharmacy students by categories (year level and university). Differences across the 4 groups of students (year 1 JCU, year 1 UTAS, year 4 JCU and year 4 UTAS) perceptions of each business management skills 'importance' and 'how to teach' was tested with Pearson Chi-squared tests²⁵. When significant differences were found ($p < 0.05$)²⁶, further exploration was conducted, consisting of analyses that combined either year levels or university location. Wherever possible, individual student responses were included in the analysis, even when there was partial completion of a question or the questionnaire.

3.3.2 Phase 2: Focus group

A semi-structured focus group framework was created, informed by the questionnaire responses in phase 1, to further explore students' perceptions of: business management skills/aptitudes required in the degree, best methods of teaching these skills/aptitudes and the role of community pharmacist management in expanded professional services. The focus group framework was 'funnel-shaped' including from broad to narrow focussed questions²⁷. Pre-written 'probes' and 'cues' were formulated to further explore students' responses to questions, with the goal of gaining consistency and limiting bias across focus groups²⁷ (Appendix G). All members of the research team discussed the questions within the focus group framework, until agreement was reached that the potential responses from students would further explain the questionnaire findings. A volunteer community pharmacist

participated in a trial focus group to screen for unexpected problems and/or suggest improvements to the questions.

Four separate focus groups, comprising of a minimum of 6 combined JCU or UTAS students separated into year 1 and year 4, purposively selected were undertaken to capture responses from each year level across both universities. Students indicating interest in participating in the focus group by returning signed consent forms were organised into 4 separate focus groups based on year level and university. The focus groups were conducted using Zoom²⁸. To ensure student confidentiality, only a zoom audio transcript was recorded. Between October and December 2021 fourteen students from year 1 and year 4 across JCU and UTAS participated in 4 separate online focus groups. Eight students from year 1 (JCU/UTAS) and 6 students from year 4 (JCU/UTAS) volunteered to participate. Focus group duration ranged from 20 to 90 minutes and continued until either theme saturation had occurred or students were unable to contribute further information.

Audio-recording of each focus group was listened to, and corrections were made against the Zoom auto-transcription, with all potential identifying information removed. Proofed transcribed documents, by the lead researcher, were re-read for familiarisation and these files uploaded to NVivo V12²⁹. Data analysis was completed in two separate phases guided by Braun and Clarke's³⁰ approach to thematic analysis. Initially a deductive thematic analysis approach was undertaken, where predetermined themes were created as parent nodes. The lead author deductively coded words and phrases from each focus group under the corresponding parent nodes. Each parent node was inductively coded to merge words and phrases into larger themes. At the completion of coding, all authors met to agree on the transcriptions, parent nodes and emerging themes.

3.3.3 Ethics

This research was conducted under the James Cook University Human Ethics approval H8342 and University of Tasmania Human Ethics approval H0024440.

3.4 Results

3.4.1 Phase 1: Questionnaire

Fifty-one pharmacy students (34%) from year 1 JCU (n=17) and UTAS (n=16), and year 4 JCU (n=10) and UTAS (n=8) responded to the questionnaire invitation, with thirty-seven (73%) complete responses received. When allowing students to make multiple selections, overall, the dominant preferences for students working career choice were in hospital pharmacy (n=38, 81%) and community pharmacy (n=32, 68%). Year 1 students displayed a similar preference in career choice between hospital

pharmacy (n=23, 74%) or community pharmacy (n=22, 71%). Year 4 students had a greater preference for a career in hospital pharmacy (n=15, 94%) followed by community pharmacy (n=10, 63%).

Forty-one (85%) students responded that business management is an essential role of the community pharmacist and 39 (81%) students believed that learning it will help their career (Figure 4). In year 1, 20 (65%) students were unsure whether they would learn business management during their degree, while 15 (88%) year 4 students responded that they would receive management training during their degree. Similar proportions of students were interested in business management, with 23 students in year 1 (74%) and 9 students in year 4 (53%; Figure 4). Generally, students did not view business management as only being important for those interested in pharmacy ownership.

Students identified that 38 business management skills are very important or important for the role of a community pharmacist (in all 38 skills, 49-100% of responses were ranked important or very important; (Appendix C), and the perspective was similar across year level and university for most business management skills (n=32). Business management skills that differed significantly in the rank of importance between the university and year level groups were being ethical, innovation, entrepreneurship, general business management, bigger picture/larger perspective, and prior experience with management (all p 's<0.05; Figure 5). The year level of students had a significant influence on the responses for the skills of entrepreneurship ($p=0.005$), general business management ($p=0.045$), bigger picture/larger perspective ($p=0.033$) and prior opportunity with management ($p<0.001$), and a close to significant relationship for innovation ($p=0.076$). In all cases students in year 4 perceived these business management skills as less important. Only one association of significance was found between student response and university type, where the skill of having prior opportunity with management ($p<0.001$) was ranked with greater importance by JCU.

Pharmacy students' questionnaire responses on how to preferentially learn business management in the curriculum indicated that there is no individual 'best' teaching method, rather a multi-method approach was recommended. Teaching methods should prioritise community pharmacy placements, workshops, mentors, lectures, and tutorials (Appendix H). Students additionally provided 8 'free text' teaching methods when responding with a learning preference, however they were consistent with the required use of a multi-method approach (e.g., writing placement, workshops, and lectures for learning one skill).

Seven of the business management skills differed between the university and year level groups in preference of teaching methods (Figure 6). These managerial skills (all $p<0.05$) were 2 conceptual: being organisational skills, business planning; 2 human: being ethical, independent; and 3 technical: being marketing and promotion (allocated as technical skills due to the specialised knowledge

requirements surrounding the laws governing pharmacy marketing and promotion), financial analysis, and pharmacy law. Responses for the skill of being independent differed based on year level ($p=0.002$). Year 4 students responded to learn being independent via community pharmacy placement, while year 1 students responded with a more diverse teaching approach, including workshops, mentoring, and lectures/tutorials. Both financial analysis ($p=0.038$) and marketing and promotion ($p=0.048$) teaching preferences differed based on university, due to UTAS predominantly responding to the questionnaire that lectures/tutorials, and a business assignment is the best way to learn these skills. While in addition to these two learning techniques, JCU students also selected workshops and mentoring as learning preferences for these managerial skills. There was a difference between the preferred teaching method(s) of pharmacy law, which was based on both the university (pharmacy law: $p=0.003$) and the year level of students (pharmacy law: $p=0.001$). This was driven by year 1 UTAS and year 4 JCU only responding with required lectures and tutorials, while year 1 JCU and year 4 UTAS suggested other methods of learning (Figure 6). The preferred methods for teaching ethics also differed by both university ($p=0.031$) and year ($p=0.049$), due to JCU responding more similarly across years with a preference for lectures/tutorials, mentoring and workshops. While for UTAS, both student year levels preferred lectures/tutorials, and workshops, with year 4 additionally favouring the community pharmacy placement.

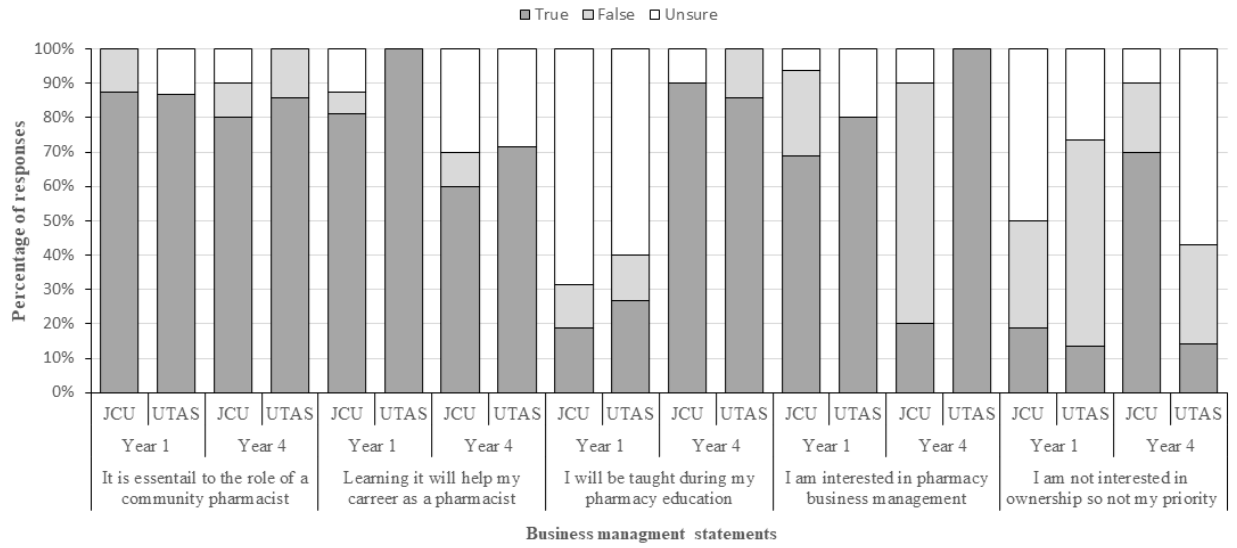


Figure 4: Pharmacy students' perceptions of business management in the pharmacy program.

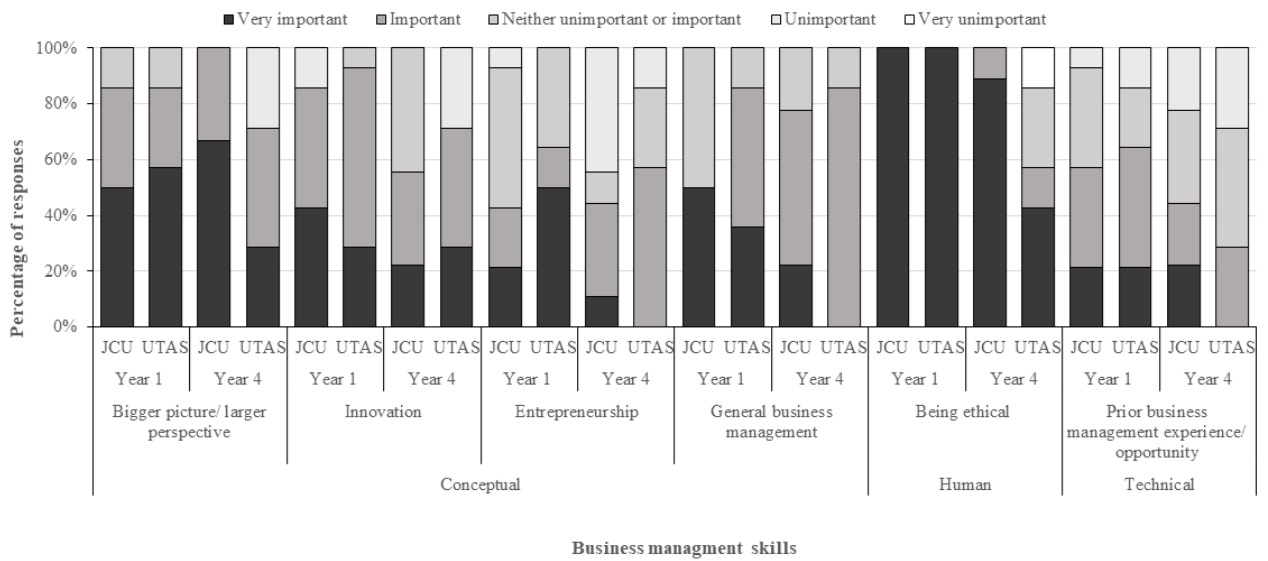


Figure 5: Pharmacy students' perceptions of importance of business management skills between universities and year level, categorised under a managerial skills framework¹⁶.

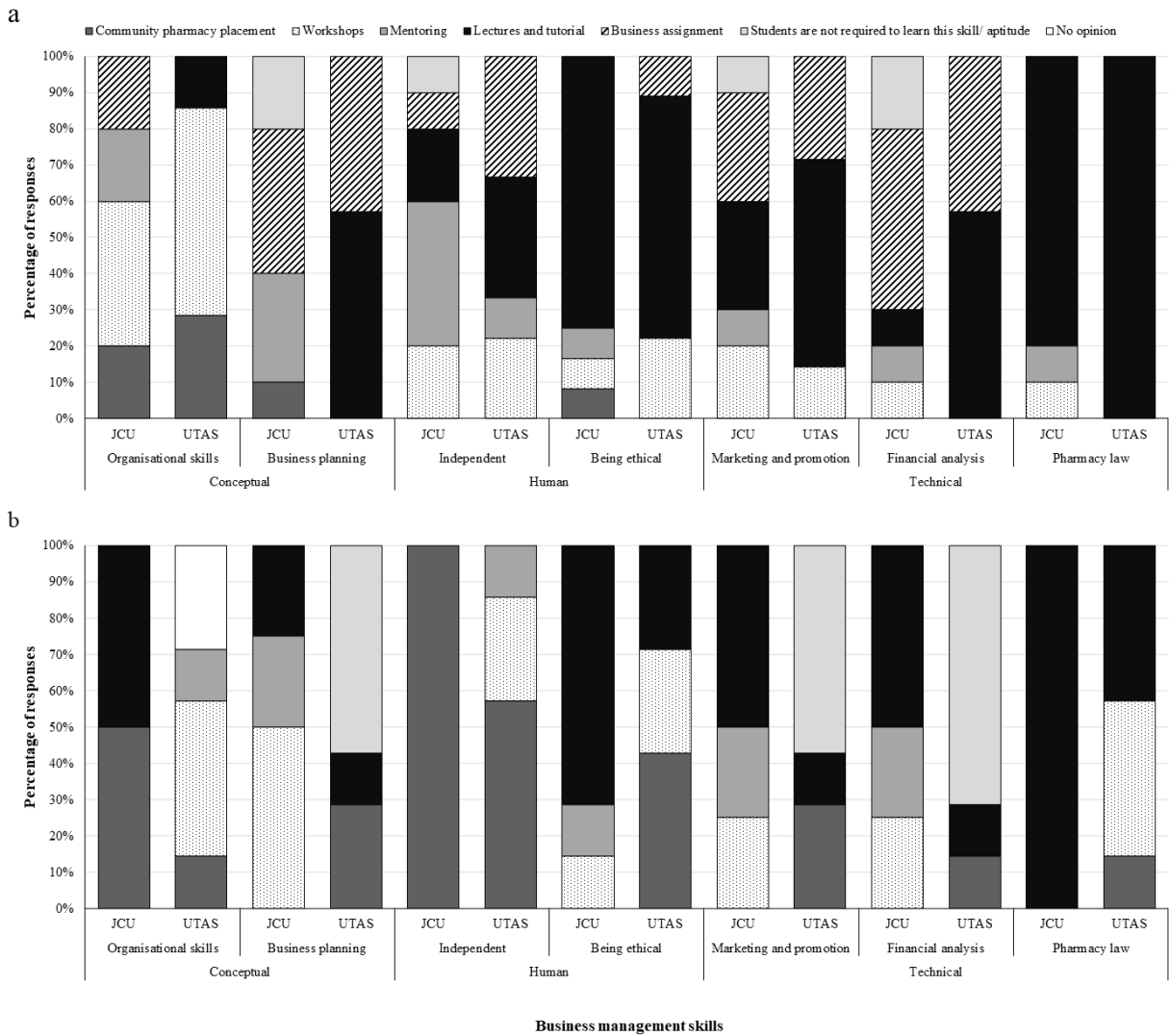


Figure 6: Pharmacy students' perceptions on teaching methods of business management skills that differed between university and year level (a: Year 1, b: year 4), categorised under a managerial skills framework¹⁶.

3.4.2 Focus groups

Focus group transcriptions were deductively coded into 2 parent nodes: (1) business management in the pharmacy curriculum and (2) business management in community pharmacy practice. Inductive coding and thematic analysis of each parent node revealed 2 common themes across both nodes: 'barriers' and 'strategies for improvement'. Due to the potential for identification, student year level and university have not been identified.

3.4.2.1 (1) Business management in the pharmacy curriculum.

Students studied pharmacy because they were interested in the clinical aspects of the profession, not because they want to learn about business management. However, over time students became more aware that community pharmacists require managerial skills and thought business management is something they might develop a passion for during their career.

3.4.2.2 (1a) Barriers to involving business management in the pharmacy curriculum.

Students felt that the current model of the four-year pharmacy degree was already loaded with clinical content and business management information appeared significantly less and had lower importance in comparison to clinical content. Adding additional pharmacy business management training through theoretical content in a classroom was seen as unrealistic and unengaging, and perhaps better learnt through 'on the job' experience in a community pharmacy with guidance from mentors. Some students thought it would be beneficial to have experienced pharmacist managers involved in the teaching of business management.

"You go into study pharmacy because you're interested about pharmacy not business. I guess you don't realise how much business management plays a role in like becoming a pharmacist and then you realize how much the need for pharmacy managers is."

"The degree is already bombarded with information, so I think we don't want to push that too much, particularly if that's not something people are passionate about."

"A lot of these skills they're trying to teach us are learnt a lot better on the job training, and from actual managers with personal experience, rather than just speaking to us."

"What we learned in class wasn't really like inspirational and motivational to go into pharmacy management."

3.4.2.3 (1b) Strategies for improving business management in the pharmacy curriculum.

JCU students received introductory business management training within the first year of their degree and noted it was beneficial to help them become a better professional. Students were clear that if business management is a core subject within the curriculum, then a single semester is sufficient. However, there was no clear indication of the best time to teach it within the degree. Several students suggested that those who are interested in business management should have the option to do a specialised elective subject during the degree or a postgraduate professional business management course.

“I think that those key kind of things leadership styles, communication, um conflict resolution, I think they just make you a good professional adult, regardless.”

“I think like that more in-depth stuff should be offered as like an elective if you want to undertake it like, but not until fourth year. If we get to fourth year and we’re like wow, we really want to become a pharmacy manager, then we should have that option to have like a business or finance elective or something just so if we have that interest in it.”

3.4.2.4 (2) Business management in the community pharmacy.

Pharmacy students across both year levels and universities favoured the clinical role of the pharmacist but understood that business management is a necessary skillset for a community pharmacist. Year 1 students were open-minded to a career in community pharmacy, where year 4 students were looking for a professional pathway that will allow them to utilise their clinical knowledge. Students were united that the business management practices, culture, and working environment of community pharmacy has influence on their future career choice.

3.4.2.5 (2a) Barriers to involving business management in the community pharmacy.

Business management was viewed as automatically being integrated into the community pharmacist role, noting that managerial responsibilities were thrust upon them, making it a challenge when their primary interest is performing clinical duties. The internal conflict this presents, was described where a person in the pharmacy is both a patient to treat and a customer that presents an opportunity for the business to profit. Dissatisfaction was expressed with management styles and community pharmacy roles being structured towards dispensing large volumes of cheap medications at speed and meeting key performance indicator (KPI) targets. These styles were noted as being particularly evident in city and corporate community pharmacy, while community pharmacists within rural and remote areas were believed to have expanded business management skillsets, due to working in isolation with limited help from qualified staff.

“It is 100% thrust on you I guess like you might not have a choice but that one pharmacist is going to be like, oh, you need to take on the manager role because nobody else is going to do it and then you're just kind of stuck with it.”

“You often hear students that have worked in chain pharmacies, I've heard some people say that they pretty much just dispense medications, um constantly, and that they might not be using their clinical knowledge that they learned in university.”

“I think in more rural remote area, you know, especially with shortages on staff, the pharmacist would probably have to step into a more broad-scope and deal with all of those things. So, I think, you know, you probably ideally should have all those skills.”

3.4.2.6 (2b) Strategies to improve business management in the community pharmacy.

The students believed that early career pharmacists might benefit from choosing roles with low level managerial responsibilities so they can focus on the clinical roles of the profession, with more senior pharmacists handling the business management responsibilities. The hierarchical structure of larger corporate community pharmacy was seen as a good career choice for recent graduates as they may not require high level managerial skills. Some participants responded positively about business management in community pharmacy, with those were who enthusiastic about learning business management also describing working with pharmacist mentors who inspired them be passionate about business management.

“If you're an early career pharmacist and you're new to pharmacy, I think it would be best practice if you were having less responsibility in terms of management and there were other senior pharmacists that were doing this.”

“I've worked in community pharmacy for like nearly 10 years now, and I've worked at a few different places, and the different roles of management that I've seen from the pharmacist manager and from the owners, it makes me really excited the fact that I one day will be able to do that.”

3.5 Discussion

Pharmacy students perceived business management as an important role of the community pharmacist. They also believed that business management skills are preferably learnt via a multi-method teaching approach. Business management and the community pharmacist are intrinsically linked. Interestingly, the majority of the students in this study and 92.83% of students in the Davies et al.³¹ U.K. study believed business management would be needed in their future career, yet the priority of students in this study was to develop clinical skills, during their university training. Considering the need of business management for the community pharmacist, as well as the potential for managerial skills to augment the outcomes of clinical roles,³²⁻³⁴ there is an opportunity for the profession to strategically recruit business minded people into the profession³⁵. This recruitment approach is supported by Traynor et al.³⁶ who describes possessing a natural attraction for business management as an important characteristic to achieve success with managerial skills, and Anderson's³⁵ commentary,

which outlines the benefits of recruiting the right students, including those with potential leadership and management skills into the profession.

Not all community pharmacists will be managers, nor will they aspire to be, but experience with and exposure to business management is beneficial to develop their full potential as clinical experts³⁴. Students in our study did not make a strong connection between business management and the potential to benefit their clinical role, however, they recommended that all business management skills identified by Davey's¹⁵ scoping review were important for the community pharmacist. A barrier raised by JCU/UTAS students and consistent with findings from O'Driscoll et al.³⁷ and Ford et al.³⁸ is that the pharmacy program is already content heavy. Students did not think any clinical content should be removed to accommodate business management training and were supportive of the concept to undertake postgraduation business training if available. This finding was supported by Jacobs et al.³⁹ where 82% of students recommended a dual PharmD/MBA degree to first year pharmacy students.

The idea there is no single best teaching method^{19,20} was supported by JCU/UTAS students as they preferred to learn business management by multi-methods. The preferred teaching of business management was during community pharmacy placements, workshops and mentorship, which reflects their belief that business management is best learnt from 'on the job' practical experience as theoretical classroom teaching is less engaging. This hands-on approach, delivered through practice in a community pharmacy setting, is known to increase student learning, attitude to management⁴⁰ and professional identity⁴¹. This does not however conclude that traditional didactic classroom teaching is obsolete. Students in our study preferred to learn ethics and pharmacy law from lectures/tutorials, which is confirmed by Bullock and Horne⁴² who reported that managerial skills can be improved from didactic teaching. What can be concluded, is that Perepelkin³⁴, Singleton and Nissen⁴³ studies support JCU/UTAS students' requirement to be engaged when learning business management and 'telling' them about management may not develop confidence in practice.

Discovering that students want to be more engaged during their managerial education with real-world application has been explored and supported by other studies^{34,44,45}. Perepelkin³⁴ identified that re-designing the business management course through the teaching approach of a 'real-world' business plan and student-led discussions (multi-method) engaged students with improved outcomes. Like JCU/UTAS responses, 89.2% of students agreed that a variety of learning opportunities was better than classroom lectures alone. Engaging students with 'real-world' learning was also investigated by Gatwood et al.⁴⁴ and Hicks et al.⁴⁵ with the results showing improvements in managerial skills. Engaging in 'real-world' experience allowed students in the Hicks et al. study to connect where business fits into pharmacy practice providing a better understanding of pharmacy management principles. An

interesting similarity between both, the Gatwood et al.⁴⁴ and Hicks et al.⁴⁵ studies is that when there was an association between a pharmacy key contact (mentor/expert) and students, this positively influenced outcomes.

Integrating mentors into teaching programs is a utilised in practice in professions including pharmacy^{46,47}. Several students described that their attitude for business management changed during pharmacy work experience, and they developed enthusiasm from receiving exposure to a good mentor. Zgarrick and Talluto⁴⁸ described that working with a pharmacy manager will better prepare our next generation community pharmacist managers, whilst Slavcev et al.⁴⁹ recognised the importance of attracting and training quality mentors for inclusion into pharmacy managerial training programs. Success in mentoring requires attracting and training the right people, as Feldman⁵⁰ outlines the negative consequences from dysfunctional mentoring. JCU/UTAS students described numerous examples of dysfunctional mentorship, where community pharmacy management prioritised profits, meeting KPI's, dispensing with speed, and unethical behaviour to ensure customer retention. This observed culture in community pharmacy may have been the influence for students to prefer a career in hospital pharmacy and may have been a deterrent to practice in community pharmacy. Students described hospital pharmacy aligned more with their tertiary education clinical skillset and business management had limited influence over their decision. Although students believe business management is less important in the hospital setting, they would prefer a more balanced managerial curriculum, covering both hospital and the community pharmacy content. Overall, students have voiced a potential culture issue surrounding business management in community pharmacy. Leadership is required to change culture, and this should be the primary focus of the profession, increasing business management practices through mentors with strong leaderships skills.

Strengths and limitations

This study's strength is the inclusion of university students from different year levels, across 2 universities, and in separate states of Australia to ensure a diversity of opinions were represented. Limitations exist in this study. Firstly, year 2 and 3 pharmacy students' perceptions were not included. Secondly, the focus group length seemed to reflect the previous amount of business management training participants received, but this was expected and the researchers do not believe this impacted the findings. Thirdly, student participants were generally more interested in hospital pharmacy and it would be interesting to explore this research with students attracted primarily to community pharmacy practice. Finally, the universities included in this study were from Pharmacy Degree Programs in cities with less than 200,000 people, and the low number of student responses may limit

generalisation of our findings. Expanding the distribution of questionnaire to include more universities, across all year levels, would increase the information gained by greater student participation and this may generate different responses and/or provide improved generalisability of our study's findings.

3.6 Conclusion

Business management is an important role of the community pharmacist with students recommending important managerial skills for the profession to learn. Pharmacy educators could reflect on these findings and consider if their current business management training program covers student recommendations. This study re-enforced that there is no single best method to teach management. Educators may improve student outcomes by employing a multi-method approach prioritising pharmacy placement, workshops, and mentorship, as students described these methods of learning most engaging. Although this study provided recommendations to improve business management within the profession, actively recruiting students passionate about business into the pharmacy program is another option that requires consideration.

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4 CHAPTER 4: “WHY DIDN’T THEY TEACH US THIS?” A QUALITATIVE INVESTIGATION OF PHARMACIST STAKEHOLDER PERSPECTIVES ON BUSINESS MANAGEMENT FOR COMMUNITY PHARMACISTS

Community pharmacist stakeholder perceptions on business management were explored in Chapter 4 using a qualitative descriptive approach. A semi-structured interview framework, informed from the scoping review, was employed to learn Queensland and Tasmanian community pharmacist stakeholder experiences with business management via one-on-one phone interviews. Chapter 4 identifies the managerial skills routinely used by participants, and identifies barriers/strategies to involving business management across the profession. Chapter 4 was published in the journal *Pharmacy* and was also selected by the editors as the feature cover article. Davey, B.; Lindsay, D.; Cousins, J.; Glass, B. “Why Didn’t They Teach Us This?” A Qualitative Investigation of Pharmacist Stakeholder Perspectives of Business Management for Community Pharmacists. *Pharmacy* 2023, 11, 98. doi:<https://doi.org/10.3390/pharmacy11030098>

4.1 Abstract

Background

Expanding the scope of practice has provided an opportunity to reflect on the business management role of the community pharmacist. This study aimed to determine stakeholder perspectives of what business management skills are required for the community pharmacist, potential barriers impeding change to management practice in the pharmacy program or community pharmacy setting, and strategies to improve the business management role of the profession.

Methods

Purposively selected community pharmacists across two states in Australia were invited to participate in semi-structured phone interviews. A hybrid approach of inductive and deductive coding was used to transcribe and thematically analyse interviews.

Results

Twelve stakeholders described 35 business management skills in community pharmacy, with 13 skills consistently used by participants. Thematic analysis revealed 2 barriers and 2 strategies to improve business management skills in both the pharmacy curriculum and community pharmacy. There is opportunity for a culture change within the profession surrounding business management,

and strategies for change including within the business management educational content, practice-based learning, leadership, and mentorship.

Conclusion

Developing a dual thinking process balanced between healthcare provider and business manager is beneficial to pharmacists operating in the community pharmacy environment. Strategies to improve business management across the profession include the opportunity to learn from experienced-based education and creation of a standardised mentorship program.

4.2 Introduction

Community pharmacists operate in a retail environment and require a balanced perspective between being a healthcare expert and achieving sustainable business management^{1,2}. Operating in this retail setting has ingrained a 'transactional model' culture within the profession, where the image of the community pharmacist is framed as prioritising dispensing, compounding, and supply of medicines³. Emergence of the expanding scope of practice has provided an opportunity for the community pharmacist to shift their scope from being 'retailers' to that of healthcare professionals². Various studies have described the expanding scope of practice roles that pharmacists can provide for their community, with findings such as improved health outcomes for patients and a reduction in costs, for example reducing hospital admissions in chronic disease management, in a wide variety of healthcare settings³⁻⁶. Business management is important to the success and sustainability of expanded scope of practice and thus community pharmacy⁷. There is however a culture within the pharmacy profession that underappreciates the valuable skillset associated with business management⁸. Not only can business management improve the clinical role^{9,10}, but the opportunities presented from expanding scope of practice requires individuals with strong management, finance, marketing, innovation, and entrepreneurship abilities to create new sustainable reimbursement models⁷. University educators in Australia¹¹, Canada^{7,9}, the United Kingdom⁸, and the United States of America^{12,13} are recognising the importance of educating pharmacy students in business, and evidence-based studies help inform their curricula on the business management skills to cover.

There have been developments in the business management field of the community pharmacist since the beginning of the 21st century. In 2002 Latif¹⁴ identified there was a dearth of information available on the business management role for the community pharmacist and proposed a model for teaching effective managerial skills. Latif's¹³ contribution continued through the design of a management skills course for pharmacy students based on Katz's¹⁵ business management framework, which categorises management into conceptual, human, or technical skills. Latif identified that if managerial skills are important to the future success of pharmacy students, it was worth exploring how to best for these skills to be included in the curriculum. He makes an important distinction between 'teaching students about management' and 'students learning how to become managers'¹³. This was corroborated later by Perepelkin et al.⁹ who described that students could memorise and information dump managerial content with little retention from one-way information exchanges, such as lecture-based teaching. Although Latif's¹³ course did not significantly improve pharmacy students' managerial skills, it did confirm that business management skills are developed from experience, longer than one-single-semester, and individual character traits such as determination and persistence are important for success. Linking success of a business manager with character traits was previously reported on by

Pickle¹⁶, finding that individuals possessing superior drive, thinking ability, human relations, communication, and technical skills showed a significant rank correlation in success with success determined by society sources such as employees, customers, and competitors.

Not all community pharmacist business management related investigations have employed the conceptual, human, and technical framework. In fact, between Latif's¹⁴ study in 2002 and 2022, the researchers are only aware of one study by Ram et al.² where desirable managerial skills identified from employers during the recruitment process of community pharmacy managers were categorised according to this framework. Ram's findings indicated that skills in the human and technical domains were considered important in pharmacy managers, while conceptual skills were recognised as less important. This study² also highlighted that there was a conflict between being a healthcare provider and operating in a retail business. Katz's¹⁵ business management framework is divided into 3 sections, lower management, middle management, and top management, where Katz places a proportionally different emphasis on the conceptual, human and technical skillset required for the manager's role dependant on the management level. Katz identifies that human domain skills are required across all levels of management and represent 50% of the required managerial skills across all management roles. Davey et al.¹⁷ in a scoping review in 2022 developed a conceptual, human, and technical skills managerial framework, informed by the perceptions of community pharmacist stakeholders and pharmacy students on the required business management skills for the community pharmacist. This review highlighted the importance of integrating effective business management skills into the profession and that human domain skills are the most prominent business management skills required by community pharmacists, which aligns with Katz's¹⁵ findings.

Business management research is an important resource for pharmacy educational programs to make informed decisions about the management skills, whether they be technical, human, or conceptual, to be included in curricula¹⁴, but these are limited in number. Current business management studies primarily explore the managerial skills to be included in the pharmacy curriculum^{12,17,18} and how to best teach this material^{9,13,19}. Generally, the findings of these studies recommend preparing students with business management skills during their tertiary education program and to approach this through non-traditional, multi-method, or innovative teaching, as these methods have positive learning outcomes. A 2012 study by Rollins et al.²⁰ investigated the exclusion of business management from the pharmacy curricula, which found that students may be disadvantaged from not receiving managerial training and concluded that pharmacy school curricula should sufficiently cover this subject to meet the Accreditation Council for Pharmacy Education standards^{21,22}. More recently, Schuh's²³ commentary debated that business management should be a significant element of pharmacy education.

With the evidence supporting the inclusion of business management education for pharmacists, this study aimed to explore the perceptions of community pharmacist stakeholders of business management skills required for their role, the potential barriers to change that may exist to the inclusion of business management in the university pharmacy program and community pharmacy environment and the strategies to overcome them.

4.3 Methods

Study design

This investigation used a qualitative descriptive approach study design^{24,25}, focussing on the lived experiences of the participants, which was learned through semi-structured one-on-one phone interviews. The Consolidated Criteria for Reporting Qualitative Research (COREQ) was completed as a checklist to report this study (Appendix I).

Ethics approval

This research was conducted under the James Cook University Ethics approval H8342 and University of Tasmania Ethics approval H0024440.

Australian community pharmacy environment

Community pharmacy is generally considered a retail business in Australia. Regulations restrict community pharmacy ownership, with only a pharmacist permitted to own a community pharmacy in Australia. There are additional restrictions on the number of community pharmacies a single pharmacist can own, and this number varies across states. Pharmacists operate under varying business models and hierarchical management structures, including independent stores, corporate banner groups that share similarities to franchise groups, and private banner groups. Over the last 20 years, there has been a remarkable increase in the number of 'big box model' private banner group community pharmacies, which have dominated the market through advertising the lowest selling price of prescription medications to consumers¹¹.

Study population and recruitment

This study, informed by a scoping literature review¹⁷ on business management skills required for the community pharmacist, employed semi-structured phone interviews with pharmacist stakeholders from Queensland and Tasmania in Australia. Pharmacist stakeholders were selected via purposive sampling to ensure that participants included: male, female, community pharmacist, community pharmacist locum, community pharmacist manager and community pharmacist owner manager. Participants from different business models and geographical locations of community pharmacy were also purposively selected to include independent community pharmacy, banner group/corporate community pharmacy and from pharmacies located in urban, rural and remote areas. The Queensland and Tasmanian branches of the Pharmacy Guild of Australia emailed their respective community pharmacist members an invitation to participate in this study, with details of the study provided through an attached information sheet (Appendix J), with a consent form provided (Appendix K).

Interview framework, validity, and pilot

A semi-structured interview framework was scripted to explore pharmacist stakeholders' perceptions surrounding business management roles, positives and/or challenges with business management in community pharmacy, and the preferred content and delivery method for this content in university curricula. The structure of the interview was 'funnel-shaped', designed to deliver broad to narrow focussed questions²⁶. To limit bias and gain consistency across interviews, a series of pre-written 'probes' and 'cues' were included in the interview framework to further explore pharmacists' responses²⁷. Validity of this study was achieved through investigators discussing the content and structure of the interview framework, until it was agreed that potential responses from participants would answer the study aims (Appendix L). A pilot phone interview with a volunteer community pharmacist was conducted to test the method and interview guide.

To keep a record of participants and ensure a diverse sample population of pharmacists was included, a table was created with category headings, pharmacist role, location, gender, experience, and business model (Appendix M). Participants returning a signed consent form via email were contacted and phone interviews conducted at the residence of the lead researcher if participants met the study population requirements at a mutually agreed time and audio recorded. At the completion of interviews, the audio recording was transcribed using Zoom²⁸, proofed by the lead researcher, with the resulting data given a unique code name (Appendix M) to ensure data was deidentified.

Data analysis

Proofed transcribed files were imported into NVivo (V12)²⁹ and a hybrid approach to data analysis was performed by the lead researcher, guided by Braun and Clarke's approach to thematic analysis³⁰. Initial analysis involved a deductive approach, where pre-determined themes of interest were created into parent nodes; **(1)** extracted business management skills, **(2)** business management in the curriculum, and **(3)** business management in the community pharmacy. Each transcribed file was inductively coded to merge words and phrases into larger themes under each respective parent node.

Inductive coding of parent node (1) extracted business management skills described in each interview and categorised these descriptions into a business management skills framework¹⁷. This coding revealed the business management skills that were described to be used across a range of community pharmacist populations (Table 7, Appendix M and N). Responses were explored between different populations of the community pharmacist (Figure 7, Table 7); location; (urban or rural and remote), business model of community pharmacy (independent, or banner group/corporate), and position of pharmacist (locum, pharmacist manager, owner/manager, or multi-store owner/manager).

4.4 Results

Twelve community pharmacist stakeholders participated in phone interviews (Appendix M) between October 2021 and February 2023. There were (n=6) participants from Queensland, and (n=6) participants from Tasmania, Australia. Phone interview duration ranged from 15 to 45 minutes and continued until theme saturation surrounding each topic was evident or pharmacists were unable to contribute further information.

4.4.1 Extracted business management skills

Thematic analysis of stakeholder described business management skills of daily duties, node (1), found that across all participants, the pattern observed was; 30 business management skills described by those from rural, remote and urban areas, 29 business management skills described by those from independent and banner group/corporate community pharmacies and 13 common business management skills described by all participants covering all categories of the community pharmacist (Figure 7). These skills were technical: business acumen, financial analysis, professional development, prior-experience, and business model diversity; human: confidence, being proactive, personnel

	fall on a daily basis (2-TAS), making sure tasks are completed (3-TAS), lots of different roles, the normal stuff, maximise the income for the pharmacy, each day is different (4-Tas), the day to day running of the pharmacy (6-Tas).
Problem solving	I look around and hone in on where I can see weakness (1-QLD), how to problem solve, how to critically access situations (2-QLD), having to make decisions and learn things (6-QLD), coming up with unique and creative solutions (2-TAS), fill gaps, make the decisions to make things easier for people (4-TAS), having a business strategy, knowing how to do things and the value of doing them (5-TAS).
Pharmacy operations	It's doing compliance audits, DD's, all of our standards (1-QLD), various standing operating procedures, the workflow of the pharmacy (4-QLD), the other side of management was KPI's, budgeting and front of shop (5-QLD), recording, auditing data, medication safety type of work (6-QLD), same as the owners, all the day to day basics, checking everything is okay to work (1-TAS), I'm intimate with the operations of my business (2-TAS), it's hard to define because two days can be very different...dispensing, to nursing homes, maximising the income of the pharmacies (4-TAS), how to do things structurally and develop a purpose for the business (5-TAS), ensure the day-to-day running of the pharmacy from an operational perspective (6-TAS).
Organizational skills	Organisation, connecting people (1-QLD), organising training (6-QLD), organising changes and managing subcontractors, that's the hard part knowing where to find the information and who to call (4-TAS), developing structures, what you want to do and how you might want to do that (5-TAS), day-to-day running of the pharmacy, the operations and make sure it runs smoothly (6-TAS).
Innovation	The big problem we have is how do we service these additional activities [expanding scope of practice]. Robotics is an area that we have to look at (5-TAS).
Business planning	Strategic direction, risk management (2-QLD), planning and implementing professional services (4-QLD), change management (6-QLD), viability sustainability of services (2-TAS), business model planning and viability (4-TAS), business strategy and structures (5-TAS), identify and develop new business opportunities (6-TAS).
Inventory management	Ordering, management with deliveries and associated problems (2-QLD), stock control management (3-QLD), stock ordering (5-QLD), consulting around supply and storage (6-QLD), orders and everything (1-TAS), stock management, ordering (2-TAS), stock, ordering and deciphering what you need (3-TAS), logistics (4-TAS).
Networking and relationships	National support offices, accounting teams, admin teams, marketing buying teams... spend time and learn from them (1-QLD), multidisciplinary type consults, like nurses (6-QLD), outsourcing business roles, engaging lawyers, accountants to support and develop gaps in skills (2-TAS), negotiating changes, managing the subcontractors, locum agencies (4-TAS), networking with small group of other pharmacies (5-TAS).
Retail operations	I deal with the manager about running the store better or helping solve issues (1-QLD), the day-to day basics, all the tills and orders, just everything (1-TAS), I'm intimate with the operations of my business (2-TAS), make sure stores are running profitably and trying to sort of streamline those operations where practical as much as possible (4-TAS), the day-to-day running of the pharmacy (6-TAS).
Larger perspective	But, that's on the big scope...the skills differ on the grander scope (4-QLD), understanding how pharmacy works (6-QLD), sustainability of community pharmacy (2-TAS), step outside the pharmacy machine (5-TAS).
Entrepreneurship	Nil.

Human

Communication	Mentoring people, I look out for personal problems, whether they are sleeping okay, how their home life is, you never know what you are going to find (1-QLD), if you manage to create an environment where the team is happy and clicking, it's excellent (2-QLD), patient education (3-QLD), management of staff (4-QLD), all the H.R. issues, recruiting, interviewing, so
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staffing (5-QLD), multidisciplinary consults, meetings, education committee meetings (6-QLD), your behaviour, how you affect people and asking for feedback (1-TAS), part of my role is assisting the retail manager and working as a team to help each other (3-TAS), how to talk to people, as far as managing staff (4-TAS), I'm mentoring at the moment, working with pharmacists to try and run a business (5-TAS).

Some people are superb at legislation, others are slack and you have to pull them-up, c'mon mate you can't do that (1-QLD), professional self-respect...put your professionalism foot down (4-QLD), one pharmacist staffed on their own in a busy pharmacy, they are never doing their job properly (6-QLD), earning respect...it's about your behaviour and how you affect people (1-TAS), bringing-in elements of professionalism within the business (5-TAS).

We look at students as future pharmacists...I think they lack leadership skills (1-QLD), creating an environment where everybody works well together (2-QLD), regardless of what role you are in, there's always some form of leadership (3-QLD), providing guidance in those early years (5-QLD), be able to get people on board with what you are trying to achieve (6-QLD), very big on being a leader (1-TAS), I'm mentoring at the moment...seeing others succeed, that's my motivation (6-TAS).

Working with managers in the group (1-QLD), creating an environment where everyone is working well together and clicking (2-QLD), the difficult part is to get other people on board with what you are trying to achieve (6-LD), it's about your behaviour and how you affect people, I often ask for feedback (1-TAS), that's part of the role and part of the challenge, to through these things and work together (3-TAS), working with other pharmacists has been good, being able to roll ideas off them (4-TAS), using the 70,000 people we have in our workforce, pharmacy assistants, that's an untapped resource we have to look at (5-TAS).

Patient education and counselling (3-QLD), for example, a patient is nervous about being vaccinated, they want the pharmacist to reassure them and this takes time (4-QLD), patient centred care and patient contact (6-QLD), we give the patient value for money, they pay more and get more information and advice (1-TAS), first and foremost, engaging with my patient cohort and providing care (2-TAS), making the decisions to make things easier for people...depending on what you want to do for the people on the ground (4-TAS), professionalism is important, a risk with being a businessman is that you can lose track of your primary training, which is healthcare (5-TAS), making a change in someone's life, that an incredible feeling (6-TAS).

I probably overload myself, cram too much and that's probably self-inflicted (1-QLD), at the end of the day, it really just depends on what your interests are (3-QLD), most pharmacists don't see themselves as pharmacist...this is me, this is my character (4-QLD), try to figure it out and problem solve instead of just complaining about it (6-QLD), it's about your behaviour and affect to people, and asking for feedback (1-TAS), learning from the world around me, asking questions (2-TAS), I'm a self-driven person, you need that drive (3-TAS), I like using my brain in a different way (4-TAS), step outside the pharmacy machine, ask yourself as an individual how you wish to practice (5-TAS), try to get yourself out of those roles, concentrate on the business rather than being in the being in the business, it's easier said than done (6-TAS).

Mentoring people, looking out for personal problems...looking for issues (1-QLD), dealing with different staff personalities...just insanelly busy and no good skilled staff (2-QLD), what makes it hard in community pharmacy is staff management and the personalities that work there (4-QLD), conflict resolution, interviewing,...all H.R. issues, so staffing, rostering (5-QLD), some of the roles are around other staff, working with pharmacy assistants, making sure they're on track and supporting them (6-QLD), how to earn respect, and not just become a manager...I often ask for feedback from assistants (1-TAS), staff, H.R. (2-TAS), it can be difficult to manage staff at times...being sick, resigning, poor performance, clashes (3-TAS), making sure there is sufficient staff, ...hiring, firing, H.R. (4-TAS), I'm mentoring at the moment...assisting with business management (5-TAS), people management (6-TAS).

Dedication	I'm up for the challenge (6-QLD), everything I've learnt is self-taught and self-considered (2-TAS), I'm pretty well embedded in the pharmacy profession (5-TAS), we identified opportunities and we're like dogs with bones at it (6-TAS).
Independent	I was the sole pharmacist as well as the actual manager (5-QLD), in regional or remote areas, you just have to figure it out as you go (6-QLD), we don't have a second pharmacists, I'm the only pharmacist here (1-TAS), a lot of it was self-taught (2-TAS), no one helped me (5-TAS).
Being ethical	Caring whether a pharmacist is speaking to ethics (4-QLD), being instructed to bend the rules and laws for personal gain, it's so wrong (6-QLD), it's about your behaviour and how you affect people (1-TAS), we have consumerised healthcare, we should be a health service, not a commodity-based service (5-TAS).
Being proactive	Looking for gaps and filling them (1-QLD), I learnt this through my own research, it was self-taught, seeing the world around me, asking questions (2-TAS), the business side is good because you are challenging yourself (6-QLD), I'm a self-driven person, that drive helps you go that extra mile (3-TAS), no one helped me, one you have the guts to sort of start charging for your brain activity, cognition, then things will change for that business (5-TAS), the thrill of the chase is what drove me, and you'd get one on the hook and then to um, to manage to land it was what it was all about in my book (6-TAS).
Adaptable	Looking for gaps and filling them (1-QLD), depending on your personality, you can overcome challenges or not (4-QLD), it's challenging always being the one on call and balancing work and being a mom, trying to get the balance right (6-QLD), being stuck with lack of staff, employing locums after locums (1-TAS), the last three years in we've seen the most changes ever in pharmacy (3-TAS), I enjoy the variety (4-TAS).
Empathy	Preceptors can lack enthusiasm, don't really care about them (1-TAS), someone that's newly a graduated pharmacist... handing over the managing aspects of the business to them, that's a significant requirement to place on someone and probably a bit unfair (2-TAS), most pharmacists don't see themselves as pharmacists, I can guarantee that. They don't want know or want to except what the meaning of a pharmacist is (4-QLD).
Time management	I cram too much, that's probably self-inflicted (1-QLD), H.R. takes up a lot of my time, it's not particularly enjoyable...there is not enough time in the day (2-QLD), out of pressure from time, they tend to deviate from professional standards (4-QLD), trying to balance work that you need to get done, if you had an office that you didn't get disturbed, you could get the work done. (6-QLD), I had a 2-hour hand over, that's the nature of the business, they don't want to pay people more than they need to (4-TAS).
Ambition, risk taking	It drives me to keep going, I'm self-driven and when you have that drive behind you, it helps you go the extra mile (3-TAS), once you've got the guts to start changing your brain activity, cognition then things will change for the business, people will see the value and you can manage a crisis better (5-TAS), identified the opportunities, and went at it like dog's with bones, it's fun, the thrill is in the chase (6-TAS).
Conflict resolution	Handling difficult customers or staff, how to handle pressure (1-QLD), so much of the role it's H.R. these days, dealing with different staff personalities (2-QLD), the H.R. side of things is average, the staff can have a lot of issues with each other, conflict resolution and that sort of stuff (5-QLD), one assistant gave me a little bit of a hard time (1-TAS), it can be quite difficult to handle staff at times, clashes between staff or staff with customers, but it's part of the role (3-TAS), staff will do it the way they think it's correct, there can be a lot of resistance and fightback implementing changes (4-QLD).
Resilient	I look for personal problems, are they sleeping okay, how their home life is, any health issues (1-QLD), the last 6 months have been incredible stressful, you are constantly behind the eight-ball (2-QLD), there is definitely the feeling out there, people are just like why are we expected to do all this extra stuff because I think people are tired after Covid (6-QLD).
Confidence	You just might not be confident with business, have staff issue or culture issues (1-QLD), I have confidence from witnessing a management crisis, I now know I cannot be the worst (1-TAS), really deliver the skills that are going to be required, to

help build up the confidence (2-TAS), sometimes you assume you don't have it (4-TAS), learn things and reach out to people, it just builds up your confidence (6-TAS).

Affinity to role
repetitiveness

Not to say you don't use your brain day to day, but when you do something enough, you sort of you can develop habits and develop things that are probably good for avoiding errors. but maybe don't stretch you as much as they should. I definitely enjoy the variety and probably using my brain in a different way (4-TAS).

Technical

Professional
development

Mentoring people..., reviewing business goals and progress with those goals...having a coach to help (1-QLD), gaining new skills, as it opens up new doors (6-QLD), I worked with ten different pharmacists and saw ten different styles of management (1-TAS), stepping in and learning completely from the bottom (4-TAS), one thing we do wrong in pharmacy is continuing professional development, we don't modulate things very well (5-TAS), my mentor invested in me quite heavily, going to industry specific courses such as finance and management... I was lucky to have a mentor (6-TAS).

Financial analysis

Whether something is worthwhile pursuing from a financial standpoint (2-QLD), a greater competition, the pure finances and sticking to your procedures...that's the negative, too focussed on the dollar (4-QLD), management stuff like, KPI's, budgeting. The business analysis was good, to see how the business was performing (5-QLD), the viability of expanding scope services (6-QLD), what a profit and loss sheet looks like (2-TAS), the financial side of things, which I didn't know much about (3-TAS), read profit and loss... maximise the profits (4-TAS), how do you wish to exploit your business in a profitable sense (5-TAS), understanding the nuances of the pharmaceutical benefit scheme and how that relates back to a profit and loss (6-TAS).

Marketing and
promotion

I throw a business cap on, marketing, a wide array of various tasks that might fall on a daily basis (2-TAS).

Business acumen

Very strong business minded (4-QLD), good healthcare is good business...being efficient and sustainable (2-TAS), you need to make sure it's viable, because we are a business from a community pharmacy perspective (3-TAS), from a business side, I think it's a good chance to make decisions...the long term viability...maximising income (4-TAS), a lot of young owners out there don't have a good business head (5-TAS), my job...business development, identify opportunities, chase them up...understand how it all worked (6-TAS).

Pharmacy law

Reviewing all the standards, the DD's, S3's, S4's (1-QLD), out of time or pressure...deviate from professional standards, sometimes unfortunately legal aspects (4-QLD), you should know your obligations are, because there's a legal or legislation to what you are claiming (5-QLD), there's a lot of legislation...each state has its own legislation (6-QLD).

Technology

Auditing data, generating data and the software that goes with that (6-QLD), additional business structures, such as adding in robotics (5-TAS).

Business model
diversity

It's the structure of the individual business, different roles will be delegated to different pharmacists (3-QLD), we all need the same skills, the difference comes down to metro or somewhere where there is greater competition (4-QLD), it depends on the size of the pharmacy (5-QLD), I learned in a bigger chain pharmacy, it's actually not one person's job, everyone has different roles and responsibilities (1-TAS), awareness of the environment community pharmacists are entering, various business structures or workplaces (2-TAS), it depends on the size of the pharmacy, the way the pharmacy is run (4-TAS), work with the discount models that are around us, be aware of pricing, but you can win the battle with cognitive services (5-TAS), modern pharmacy is becoming more and more corporatized (6-TAS).

Prior experience

It really comes from having experience (1-QLD), with the shortage of pharmacists, there's probable more early career pharmacists going into management that might not be experienced enough yet, not just a pharmacist as a human (5-QLD), I don't think you come out of university being business management ready, it's all experience (6-QLD), a lot of these skills

are learnt over the years through working in community pharmacy (2-TAS), I have had a lot of experience in owning businesses, both pharmacy and non-pharmacy related (5-TAS).

4.4.2 Barriers to involving business management in the pharmacy curriculum

4.4.2.1 Not covering business management in the pharmacy programs

The absence of business management content in the pharmacy curriculum was consistently expressed by pharmacist stakeholders and highlights a key barrier to preparing community pharmacists for their managerial responsibilities. Some pharmacists described receiving university education in a limited number of managerial skills, which were generally finance related exploring profit and loss statements. Human resources and staff management was a skillset described as required for the community pharmacist role and no stakeholder described receiving any university training in this managerial field. The general perception was university pharmacy programs were not covering business management with the justification that there is not enough time available in the curriculum due to the necessity to prioritise the clinical content.

“So much of the role is human resources these days...Definitely none of that taught at university.” (2-QLD)

“I didn’t learn anything about how to run the pharmacy and how to manage staff in university” (1-TAS)

“Sometimes you work in pharmacy and you think why the hell did they not teach us how to do this [business management]. (3-TAS)

“We didn’t get a single skerrick of business information, even just the basics.” (4-TAS)

“I think there is tight curriculum space and I think one of the things that tends to fall off is actual business management skills.” (5-TAS)

4.4.2.2 Delivering clinical work-ready pharmacists...not managers

Stakeholders believe university education should deliver ‘work-ready’ pharmacists, however, the definition of ‘work-ready’ varied. Most stakeholders felt ‘work-ready’ pharmacists would have basic business management competency, but there was the view that a purely clinically educated pharmacist was also considered ‘work-ready.’ Stakeholders perceived the current level of university

clinical education appropriate and that this content should not be reduced to cover business management. Pharmacists voiced concern that students are focussed on learning clinical skills at university and do not want to learn management, presenting another barrier to overcome.

“The problem is that not every pharmacist that goes to university is going to want to manage or want to end up in management.” (2-QLD)

“In a class setting you are just mainly thinking about patient interaction and your clinical knowledge.” (3-QLD)

“My perception on B.Pharm would be to come out clinically ready to be a health practitioner to support patients in their community... I find that the business skill aspect isn’t necessarily aligned with what the community is expecting of a community pharmacist.” (2-TAS)

4.4.3 Strategies to improve business management in the pharmacy curriculum

4.4.3.1 How do we prepare students for business management?... That’s a really good question

Stakeholders were consistent in their opinions that business management should be learnt from experience with guidance from mentors. They indicated a preference for workshops with guidance from pharmacist mentors, reflecting community pharmacy placements. Additionally, they cautioned that learning within the university setting could present a challenge for students to become competent with managerial skills if the main delivery method was lectures. The consensus was to teach management later in the course, but the amount of content to deliver varied from minimal to a full year. Stakeholders did believe it was important to create an accredited industry mentorship program to ensure students receive a minimum standard of guidance. There was an association observed across interviews, with stakeholders identifying their success in management was often the result of guidance from their mentor.

“It’s important to place them in a pharmacy where there is a feedback mechanism where that particular pharmacy has a good reputation for developing students. I think where they are placed, those proprietors should really be held to account with some sort of checklist, some sort of standard. They should respect that when they have students these guys are being moulded.” (1-QLD)

“It really comes from experience over the years and it also comes from having mentors, people that I either looked up to or learn from. I’ve always had a business coach to help me, I’ve always had somebody to help me.” (1-QLD)

“Mentoring... it would be really helpful if there was a core group of experienced pharmacists that wish to impart their experiences on younger people.” (5-TAS)

4.4.3.2 Keep business management simple

One perception from pharmacists was the business management content could be delivered with a simplified approach. In these stakeholders’ experience, managerial teaching can be over-complicated by exploring too much ‘nitty-gritty’ detail, and students fail to understand the basic purpose of why they are learning these skills. Approaching business management from a ‘keep it simple’ approach is a method that may help students grasp the basic concepts of the content they are learning.

“Teaching basic management concepts, how to problem solve, how to critically access situations, strategic direction all of those things that are not really taught.” (2-QLD)

“A full year in your final year of university set purely for business... where you have to learn the real basics of pharmacy business management.” (4-QLD)

“You often don’t need the nitty-gritty detail. What you really need is a ‘big hands, small maps’ type of thing.” (5-TAS).

4.4.4 Barriers to involving business management in the community pharmacy

4.4.4.1 Inconsistency on the standards of managerial skills

Pharmacist stakeholders were consistent in responding that not all community pharmacists are either going to want or need all these managerial skills. This barrier was revealed from the mixed perceptions within the profession on what is considered to be the minimum management skills for a community pharmacist. Responses varied from very minimal to a diverse core set of skills.

“If you’re not managing a store there’s a whole skill set that’s less important... I mean they still overlap but, it’s less important.” (2-QLD)

“You have to have those basic [management] skills developed into you, similar to clinical skills, when you’re coming up.” (4-QLD).

“If people wish to pursue ownership, management, you know pharmacist in charge, with responsibilities for business administration, they’re skills that not everyone would necessarily need... I don’t think they are an essential requirement.” (2-TAS).

4.4.4.2 Finding time for business management

A common theme across pharmacist stakeholders was being time-poor due to shortage of skilled staffed, micro-managing, or the profession driving a high workload. This was more prominent in rural and remote areas but was also found in urban locations. A depleted workforce has resulted in a more challenging role for experienced business managers, and there is a developing trend of placing early-career pharmacists into managerial positions, without appropriate training. There were suggestions that the corporatisation of the community pharmacy business model, subtly re-educating patients into consumers, was increasing the challenges for the pharmacist to balance being a healthcare practitioner and manager.

“Short staffed everyday all day...just insanely busy and no good skilled staff... it’s hard to find good skilled staff.” (2-QLD)

“The reason there is a lack of employment and difficulty in maintaining pharmacists has exactly got to do with the environment that pharmacy is in right now.” (4-QLD)

“In a rural place they probably just want to try throw you straight in and get you going cause they’re desperate for staff...you just literally have to figure it out as you go” (6-QLD)

4.4.5 Strategies to improve business management in the community pharmacy

4.4.5.1 We need a dual thinking process

Pharmacists described that finding the right balance between being a business manager and healthcare professional was a challenge for the community pharmacist. Some stakeholders have experienced a change within the profession since the introduction and dominance of corporate model pharmacies, where patients are being viewed as consumers. Pharmacists described this a difficult part of the role and emphasised the importance of education to achieve a balance between being a clinician and manager.

“They need to have this dual thinking process, always the professional with duty of care for the patient, but also being commercial.” (1-QLD)

“It’s good if you can have a balance between having some clinical work as well as management... after a while I really missed that patient contact.” (6-QLD)

“I think there is this disconnect, and I think a lot of pharmacists and perhaps young pharmacist proprietors have an opportunity to go either way, they can look at their clientele as being patients or consumers, they’ve lost the healthcare focus.” (5-TAS).

4.4.5.2 Leadership and mentorship is rewarding

Human resources and particularly personnel management were the most described business management roles. There were two distinct groups of responses, those who enjoyed supporting staff and those who found it the greatest challenge of management. Stakeholders who had received post-degree education, coaching or mentorship in personnel management were likely to speak positively about the joy they received from being able to support people in their managerial role. They described the benefits of leadership and mentorship, such as improving culture, helping others with personal goals, and making a change in someone’s life.

“The actual role itself is really enjoyable, it’s nice just to be able to help people and help them do better.” (1-QLD)

“One of things I do like to do is be helpful to people...to see them succeed in a very competitive world brings me satisfaction and joy.” (5-TAS)

“The biggest positive you can have... is when you actually make a change in someone’s life, when you actually do that, that’s an incredible feeling.”(6-TAS).

4.5 Discussion

This study highlights that not all community pharmacists will be managers or want to be, creating a barrier to educating pharmacists on business management. The findings uncover a predicament for the pharmacy profession, managerial skills such as personnel management³¹ are routinely used by community pharmacists and the perception is that all pharmacists at some point will be placed in a management role^{14,32}. Most community pharmacists may not be officially ranked as the pharmacy manager, or want to be a manager, but this does not mean they should not learn about business management. Learning business management allows community pharmacists to further develop employees’ skillsets that are valuable to their current or future role in pharmacy, build teamwork, pursue leadership opportunities; all managerial skills required by and beneficial to the profession. There is no standardised business manager blueprint used within the community pharmacist profession and this inconsistency in what are ‘core managerial skills’ was a barrier to know what to

teach and how to teach these skills in the pharmacy program. Although stakeholders revealed barriers that universities may face to include business management in their curricula, the finding that almost all stakeholders described not receiving managerial training at all is an opportunity to implement change. Our finding that community pharmacists need to develop a dual thinking process, balanced between healthcare and business management, uncovers a common purpose to improve business management, a strategy that could be implemented through experience-based education programs with guidance from qualified mentors.

Community pharmacists operate under a variety of business models with different levels of corporate structure to deliver healthcare services. These changing business environments have a potential to influence the business management skillset required by a community pharmacist. Pharmacists in our study generally described business management roles to be consistent across all business models of pharmacy, but the emphasis on managerial skills will likely change in urban and rural/remote locations, and this was primarily due to urban pharmacies routine business practice of discounting. This perception was supported by Davies et al.⁸ study, where 84.9% of pharmacists responded that managerial skills are employed daily to perform their role and 79% of educators agreeing that business management is being prioritised in community pharmacy. All stakeholders in our study described using managerial skills during their routine workday, but we found a minority view, consistent with Davies et al.⁸ findings, that not all community pharmacists' duties involved a managerial component. Community pharmacists routinely being required to perform managerial duties was our dominant finding and this supports Fejzic and Barker's³³ study on 'work readiness', where there was a shift in focus of the profession towards employing graduates with managerial skills and ability to grow the business.

There is an opportunity to improve the business management culture within the profession. Stakeholders described the benefits of finding leaders within the profession to provide mentorship as a strategy to improve business management in both the pharmacy curriculum and the community pharmacy setting. This is not a new finding, with White³⁴ identifying in 2005 that there was a potential leadership crisis in pharmacy on the horizon and that mentorship is important for fostering our new leaders. This view was supported by Hawkins³⁵, who in 2010 investigated mentorship programs and ideal characteristics of mentors. Stakeholders in our study did not link the importance of certain personality traits ideal for mentors, but they did suggest it was crucial to create a program that standardises mentorship within the workforce to ensure mentees receive a minimum level of care. What our study did find was that pharmacist mentors were time-poor, and therefore could often not

provide adequate guidance for their mentees, resulting in early career pharmacists being disillusioned by being ‘dumped’ in poor learning environments. Toxic business mentors can do more harm than good, and Hawkins³⁵ described similar findings such as being time-poor, micro-managing, ‘dumpers’ who are described to believe in the sink or swim approach and destroyers of goals or the mentees purpose. It is not a difficult link to make between current business management practices in community pharmacy and some concerning outcomes within the profession; including suicide rates³⁶, burnout³⁷⁻³⁹, work related stress^{40,41}, dissatisfaction with management⁴² and job dissatisfaction^{43,44}. Participants in our study supported some of these findings describing the difficulty in recruiting skilled staff, stressed from being overworked and were consequently time-poor. Without changes to business management education and strategies, this trend is likely to increase with further demands expected from this workforce⁴⁵⁻⁴⁷. Influencing change requires leadership, and there is evidence to prioritise the education and development of leadership within the profession to prevent a ‘leadership crisis’^{34,48,49}. Svensson et al.⁵⁰ provided insight into why this may be occurring, revealing that despite recent reforms in pharmacy curricula, universities are still at risk of delivering students into the field that are followers and preserve the status quo^{7,9}.

University pharmacy programs are central in student business management education and in the United States of America³² and Australia⁵¹ it is generally a requirement to cover this content in the curriculum. The majority of community pharmacists in this study believe it is important to include a core business management component in the pharmacy education program and offer an elective ‘advanced’ course. Stakeholders felt the opportunity to learn business management post university was missing and the creation of a post-degree course would benefit the profession. What managerial content to cover remains unclear from our investigation. The common stakeholder suggestion of including 1-core-semester of business management is conflicting with Latif’s¹³ findings where one semester was reported as insufficient for student improvement. However, stakeholders are not expecting students to enter the profession ‘work ready’ as business managers. What we found was stakeholders believe it is important for students to know the basics, and to learn the big picture. Pharmacy programs could aim to prepare students with an understanding of the basic components of a community pharmacist business management framework¹⁷ to be competent and confident with lower-level business management skills defined by Katz¹⁵. This would align with pharmacy stakeholders in this study who described 13 common business management skills used across a variety of community pharmacist roles (Figure 7), with these skills proportionally representative of lower-level management expectations (Table 7). A barrier identified from participants in this study was the perceived lack of human resources education during their pharmacy university degree and this was often described as the most challenging role. This finding was supported by Calomo³¹, who recognised

there is a lack of emphasis placed on human resources in the pharmacy field. Across Katz's¹⁵ 3 tiers of management, human domain managerial skills represent 50% of the required skills in each tier.

University pharmacy educators across different countries have identified there are challenges involved in successfully delivering a business management course^{7,9,13,52}. Stakeholders in our findings identified barriers to pharmacy school educators including; teaching business management to clinically focussed students, limited time available in an already tight curriculum, and that it is difficult to learn managerial content in the classroom setting. These findings are consistent with educators delivering managerial content, who described similar challenges such as additional time demands^{9,52}, considerable investment in school resources⁷, giving up 'control' of the class achieved through lecturing¹³, long term sustainability⁵², and finding experience-based learning partners or experts to teach^{7,53}. To improve learning outcomes, stakeholders suggested experienced-based learning was important, with preference for workshops, mentorship, and learning in a community pharmacy setting. These stakeholder perceptions are consistent with studies^{7,9,53} investigating innovative delivery methods of business management, which have resulted in improved student outcomes. Of importance to stakeholders was that this learning environment should be focussed on students developing a dual thinking process, achieving the right balance between being a healthcare professional and business manager. Stakeholders stressed the importance of having qualified mentors involved in the process of developing community pharmacists. Matching mentees with qualified mentors who possess leadership skills, who want to professionally develop, support, and nurture our future community pharmacists is important.

Operating in a retail environment could be more challenging since the introduction of Hepler and Strand's⁵⁴ pharmaceutical care model that shifted the focus to improve patient outcomes. Although stakeholders in this study did not use the term 'identity conflict', they described the importance of students learning how to think both from a healthcare and business perspective. Community pharmacists are clinically trained healthcare professionals, generally not trained to identify with the business management role⁵⁵, and this is potentially causing an identity conflict⁵⁶⁻⁵⁸. Some stakeholders in our study described that community pharmacists can struggle to know what the meaning of a community pharmacist is anymore: healthcare provider or retailer. Ram et al.² found this identity conflict in New Zealand, however, Perepelkin and Dobson's¹ Canadian study reported low levels of conflict between professional and business roles. A potential reason for this low level of conflict was organisational structure, with a known relationship between organisational culture and employee satisfaction⁵⁹, Latif¹⁴ highlights the importance of organisation in effective management, and Canadian pharmacists¹ who reported a low level of conflict worked in well-defined organisational structures. Predominately the stakeholders included in our study described routinely working as a solo community

pharmacist for varying reasons. This lack of a hierarchical organisation structure, where the clinical and managerial responsibilities can fall upon a single community pharmacist, could be a potential barrier to improving the business management role due to an underlying identity conflict. In 2020, a study by Kellar et al.⁶⁰ stressed this point on the pharmacist's clinical role; if pharmacists do not identify as clinicians, they do not see themselves in this role and therefore cannot "be" clinicians. Our findings suggest that it is important for the profession to create a hierarchical learning environment for business management, where there is a common purpose to transition the culture of the community pharmacist, identifying their role as both a healthcare professional and business manager.

Strength and limitations

A strength of this study is the inclusion of a diversity of community pharmacist roles across different states in Australia. There are limitations in our knowledge on the business management role of the community pharmacist. Although we made efforts to include a range of community pharmacist roles across two states in Australia, no community pharmacist described only being required to perform clinical duties in their role. This does potentially impact our findings and this is justified considering the small number of participants included in our study. It is important to note that pharmacists across both states received different pharmacy education and were not always familiar with contemporary university curriculum content and this may have influenced their perceptions. Capturing a greater number of community pharmacists from more diverse roles, business structures and different locations could generate different themes/or further support our findings in this study and improve our understanding of business management for the community pharmacist.

4.6 Conclusion

Community pharmacists generally work in a retail environment and require a dual thinking process, balanced between being a healthcare provider and business manager. This study has confirmed the importance of university pharmacy programs preparing students for management, but uncertainty remains about what content to cover and the amount of time the curriculum should dedicate to business management. There was a preference for a practical approach to learning business management through workshops, mentorship, and experience in the community pharmacy setting. Four barriers to business management change within the profession include pharmacy programs insufficiently covering managerial content, delivering clinically focussed 'work ready' pharmacists, time-demands in community pharmacy for effective management, and inconsistency surrounding the standard managerial requirements of a community pharmacist. Four strategies to

improve business management include covering management in the pharmacy program, simplifying managerial content, developing pharmacists with a dual thinking process, and creating a standardised mentorship program. The overall finding, that there is a potential opportunity for a culture change to business management in the profession, directs future research towards exploring leadership in community pharmacy.

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5 STRATEGIZING THE REMOVAL OF BARRIERS TO COMMUNITY PHARMACIST'S BUSINESS MANAGEMENT CAPABILITIES.

The perceptions on business management across community pharmacist stakeholders and pharmacy students were deliberately integrated and explored in the writing format of a commentary. Both groups of study participants revealed barriers to involving business management in the profession, and strategies to improve the business management competency of the community pharmacist. Chapter 5 explores these similarities and differences. Chapter 5 is a commentary in response to Chapter 3 and Chapter 4, and is under the peer review process with the American Journal of Pharmaceutical Education, submitted July 2023.

5.1 Summary

This commentary proposes strategies to address the barriers to the business management role of the community pharmacist as perceived by stakeholders; community pharmacist owners, pharmacist managers, pharmacists and pharmacy students. The community pharmacist is challenged by their dual role, requiring to be both a health care provider and business manager. Similarities exist in the perceptions of all stakeholders, on the barriers to the business management role of the community pharmacist and the strategies to address these barriers. Three barriers were identified; competition across pharmacies induces ambivalence, transitioning theoretical learned content into a practice setting, and professional overload. Three strategies are proposed to overcome these barriers; developing a dual thinking process, learning business management on the job from mentors, and help colleagues as you would your patients. Current culture within the profession may represent the overall barrier to business management in community pharmacy, requiring a paradigm shift. This commentary highlights the need to explore leadership in community pharmacy to create culture change.

5.2 Purpose

Emerging publications in business management have identified the managerial skills and aptitudes the profession requires and the different approaches to delivering business management content^{1,2}. This commentary integrates the perceptions of key stakeholders, including community pharmacists and pharmacy students, to inform on the business management role of the community pharmacist. We provide a perspective to support pharmacy school educators apply evidence-based literature to make informed decisions on the inclusion of business management in the curriculum.

5.3 Background

Community pharmacists are challenged by operating in a retail environment, requiring both a clinical and managerial skillset. Business management is too often neglected in pharmacy curricula³, presenting a challenge to community pharmacists' confidence and competence to be an effective manager in a community pharmacy setting. In 2002, Latif⁴ highlighted a dearth of business management studies available to inform university educators in the delivery of business management in their programs. Latif proposed a pharmacy business management skills framework based on Robert Katz's "Skills of an effective administrator"⁵, and noted that most pharmacists will be managers as they must manage others. Following Latif's contribution to the field, there have been a limited number of investigations involving what business management content to cover in the pharmacy curriculum and how best to deliver these skills⁶⁻⁸. Davey and colleagues⁹ synthesised this information in a scoping review, focussing on community pharmacist and pharmacy student perspectives on business management. The authors created a foundational business management skillset framework, categorised according to Katz's '3 skills approach'; conceptual, human, and technical. An innovative or a multi-method approach to teaching to deliver positive learning outcomes was proposed.

Not all pharmacists will be managers, or want to be, and this is a known barrier to the inclusion of business management into the pharmacy curriculum⁶. This conflicts with recommendations^{7,9,10}, where an increased importance is being placed on effective managerial skills within the profession, particularly in human skills⁹, leadership¹¹⁻¹³, innovation⁸ and entrepreneurship¹⁴⁻¹⁶. University educators in Australia, Canada, the United Kingdom, and the U.S.A. are recognising the importance of business management, with recommendations to cover this content in the curriculum^{4,6,17,18}. A recent study by Davey et al.^{1,2} has highlighted that there are barriers to including business management both in the curriculum and the community pharmacy setting, which may impede change to improving business management outcomes^{1,2}.

The act of implementing practice change itself is a known barrier in community pharmacy^{19,20}. Leadership is an important skill required to enact change and there is evidence of a potential 'leadership crisis' within the community pharmacist profession, which could be a significant barrier restricting progress across the profession¹³. Svensson et al.¹¹ supports this view, stating there is insufficient progress across educators developing leaders and innovators, with pharmacy programs still at risk of delivering change resisters and followers into the profession. Exploring barriers that may exist to business management across the profession, and strategizing solutions to overcome these challenges, may equip pharmacy educators with knowledge to improve pharmacy students' managerial skill competence^{1,2}. Thus, we present a commentary that synthesises community

pharmacist and pharmacy students' perceptions, strategizing the removal of identified barriers to improve the business management capability of the community pharmacist.

5.4 Discussion

Improving the business management capabilities of the community pharmacist requires change within the profession. Exploring community pharmacists and pharmacy students' perceptions on business management can reveal potential barriers impeding progress in this field, and strategize pathways forward to success.

Barrier - Competition induces feelings of ambivalence about the professional role

There is an internal conflict for community pharmacists about their role, viewing a person as both a patient to treat and a consumer, who contributes to the profitability of the pharmacy. Community pharmacists and pharmacy students agree;

"You often hear students that have worked in chain pharmacies, they pretty much just dispense medications, um constantly, and that they might not be using their clinical knowledge that they learned in university." (Pharmacy student, Australia)

"I think there is this disconnect, and I think a lot of pharmacists and perhaps young pharmacist proprietors have an opportunity to go either way, they can look at their clientele as being patients or consumers, they've lost the healthcare focus." (Community pharmacist 5, Australia).

The recent emergence and dominating presence of community pharmacy chain enterprises has resulted in a highly competitive retail environment, where market control is achieved by advertising and selling products at the lowest price to consumers. This business management culture shifts the balance of the role towards transitioning patients into retail consumers, decreasing patient interaction, dispensing high volumes of prescriptions and meeting key performance indicator targets, leading to ambivalence in pharmacists and students about what the purpose of the community pharmacist is trying to achieve.

Strategizing the removal of the barrier - Developing a dual thinking process

The community pharmacist should have a dual role, between that of a health care professional and a business manager. The majority of community pharmacists and pharmacy students described business management as an important requirement for the role;

“You go into study pharmacy because you’re interested about pharmacy not business. I guess you don’t realise how much business management plays a role in like becoming a pharmacist and then you realize how much the need for pharmacy managers is.” (Pharmacy student, Australia)

“They need to have this dual thinking process, always the professional with duty of care for the patient, but also being commercial.” (Community pharmacist 1, Australia)

With emerging evidence supporting the fostering of community pharmacist business management skills, there is an opportunity for the profession to reflect on these studies findings, and potentially unite the industry towards a mutually beneficial common goal to improve managerial skills. Equipping community pharmacists with the skills to manage this dual role is a strategy that can potentially breakdown barriers, with one outcome being a less conflicted health care profession engaging with people as both patients and consumers.

Barrier - Transitioning classroom theory into practice

University classrooms may not be the appropriate learning environment for pharmacy students to engage with and become competent in business management. This statement is supported through the experience of both pharmacists and pharmacy students;

“A lot of these skills they’re trying to teach us are learnt a lot better on the job training, and from actual managers with personal experience, rather than just speaking to us.” (Pharmacy student, Australia)

“In a class setting you are just mainly thinking about patient interaction and your clinical knowledge.” (Community pharmacist 3, Australia)

Potentially the greatest challenge for pharmacy school educators is teaching business management to students with a strong preference to learn the clinical skillset, which may explain why many pharmacists do not believe they were effectively taught business management during their education. The university classroom setting itself is a barrier, as students are not engaged in learning managerial concepts and/or not connecting how this information will be relevant to their future career in practice.

Strategizing the removal of the barrier - Business management is learnt on the job from qualified mentors.

Creating a standardised mentorship program dedicated to improving the business management skills across the profession will potentially increase the managerial capabilities of the community pharmacist. The value of learning business management in a community pharmacy setting from mentors was evident from both groups of stakeholders;

“I've worked in community pharmacy for like nearly 10 years now, and I've worked at a few different places, and the different roles of management that I've seen from the pharmacist manager and from the owners, it makes me really excited the fact that I one day will be able to do that.” (Pharmacy student, Australia)

“It really comes from experience over the years and it also comes from having mentors, people that I either looked up to or learn from. I've always had a business coach to help me, I've always had somebody to help me.” (Community pharmacist 1, Australia)

Learning business management ‘on the job’ from qualified mentors, required to deliver a minimum standard of care, can engage students through ‘real-world’ experience and positively influence their outcomes in relation to managerial capabilities. This strategy however comes with a caution; community pharmacists are not trained to be teachers, and the success of this strategy is reliant on the profession implementing a program to attract and educate the ‘right’ mentors.

Barrier – Professional overload

There is a culture ingrained in community pharmacy that expects a high workload, and therefore the profession can be time-poor. This is represented in pharmacy students’ responses to the potential inclusion of a core business management course in their university program and the community pharmacists’ perception on the current state of the profession;

“The degree is already bombarded with information, so I think we don't want to push that [business management] too much.” (Pharmacy student, Australia)

“Short staffed everyday all day...just insanely busy and no good skilled staff... it's hard to find good skilled staff.” (Community pharmacist 2, Australia)

The expanding clinical knowledge in university curricula is potentially creating an overload of information and a time barrier to cover business management at university. This culture of being overloaded and time-poor flows into the current community pharmacy environment, where there is a shortage of skilled personnel, exacerbated by a high attrition rate of pharmacists, fuelling the primary issue; a profession ineffectively planning to meet the required workload demands.

Strategizing the removal of the barrier – *Help colleagues as you would your patients.*

Human resource (HR) management, a significant component of community pharmacist managerial responsibilities, is a challenging role across the profession. Only a minority of pharmacists find personal satisfaction from helping others succeed.

“So much is HR these days, you know, dealing with rosters and different staff personalities, keeping the team happy...it takes up a lot of my time and it’s not particularly enjoyable.”
(Community pharmacist 2, Australia)

“The actual role itself is really enjoyable, it’s nice just to be able to help people and help them do better.” (Community pharmacist 1, Australia)

Community pharmacists inherently enjoy helping patients, yet this did not transfer to supporting and leading team members to achieve success and sharing the workload, which may be explained by a lack of inclusion of HR management in the pharmacy program. Improving the education and competence of HR management skills, specifically fostering a culture of ‘helping colleagues as you would help your patients’ is a long-term strategy for success in the profession.

5.5 Conclusion

Business management is an important role for the community pharmacist. Integrating stakeholders’ perceptions on business management uncovered strategies to remove barriers and improve the managerial capabilities across the profession. These findings provide valuable information and guidance to university programs and the profession to inform the need for practice change. Mentorship and leadership within the profession is integral to influencing managerial culture change and these skills require further investigation in community pharmacy.

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6.1 Conclusion

This study is unique in presenting the in-depth perspectives of both community pharmacists and pharmacy students on the business management role of the community pharmacist. Synthesising their perceptions of business management in community pharmacy in a scoping review, resulted in the proposal of a business management skills framework, with a recommendation to pharmacy educators to deliver these skills to students via innovative or multi-method teaching. Pharmacy students agreed that all skills listed in this business management framework were important for the community pharmacist's role. Pharmacy students also preferred to learn business management through experienced-based practice, such as on community pharmacy placement, during workshops, or via mentorship. They described barriers to business management in the curriculum and community pharmacy practice and proposed strategies to address these barriers. Barriers included pharmacy student's prioritising the learning of clinical skills, the fact that they were not engaged with learning theoretical managerial content, and an unrealistic expectation for covering business management in a course that is already overloaded. A recommended strategy to engage the students in business management was to involve community pharmacists with a passion for teaching business management in pharmacy school programs.

Community pharmacist stakeholders perceived business management to be routine to the role of the community pharmacist, and similarly to students, identified barriers to involving business management across the profession. Entrepreneurship was the only managerial skill not mentioned as being used by community pharmacists, when comparing their responses to the identified business management skills framework. Barriers included not covering the required business management during their university education, an inconsistency between community pharmacists on what managerial skills are required for the profession, and not having enough time due to the dual role required in community pharmacy. Strategies proposed to overcome these barriers included keeping business management content simple, developing a dual thinking process, and improving their skills in human resource management through leadership and mentorship programs.

Pharmacy students and community pharmacist stakeholders agreed that the community pharmacist is challenged by their dual role, that the business management framework proposed in Chapter 2 of this thesis contains the managerial skills/aptitudes required for the role, and the preferred delivery of these skills is via an innovative or multi-method teaching approach. Pharmacy students and community pharmacist stakeholders concurred on several barriers to involving business management

across the community pharmacy profession and recommended strategies to remove these barriers. Recommended strategies included community pharmacists developing a dual thinking process, learning business management from an experienced-based educational environment, involving qualified mentors with a passion for business management, and fostering a culture of helping colleagues as you would your patients. Implementing these recommendations requires change, which is a potential challenge for the profession, where the leadership skills of the community pharmacist is a current area of concern¹⁻⁴.

6.2 Recommendations

The purpose of this study was to provide a comprehensive view of the business management skills required for a community pharmacist by exploring the perceptions of community pharmacist stakeholders and pharmacy students. The common vision was to provide a way forward to improve the community pharmacist's business management competence and confidence in that setting. The overall findings of this study informed six recommendations to improve the business management capabilities of the community pharmacist.

- i. **Recommendation 1:** Community pharmacist should embrace their dual role as a healthcare professional and business manager. Recommended strategies to achieve this (Figure 8), include involving qualified mentors with a passion for teaching business management to engage with the learning experience of pharmacy students.
- ii. **Recommendation 2:** The profession in collaboration with the universities should market the profession appropriately to future and current pharmacists, and represent the dual nature of the profession, as health care professional, including a business management role.
- iii. **Recommendation 3:** Pharmacy school educators and community pharmacist mentors should reflect on their managerial education programs to consider covering the business management skills framework proposed in chapter 2 of this thesis. Education programs should aim to improve human domain business management skills competency in both the pharmacy program and community pharmacist setting.
- iv. **Recommendation 4:** Pharmacy school educators should include innovative or multi-method teaching approaches recommended in Chapter 3 and 4 of this thesis, as this is more likely to improve the business management capabilities of pharmacy students.

- v. **Recommendation 5:** The profession should strive to achieve a hierarchical community pharmacy environment. This would involve mentors guiding early career pharmacists in a low-level managerial position, being afforded the time and opportunity to learn and progress to a higher level of management, from this experience-based learning. This includes having programs available for solo operating community pharmacists to receive guidance and support from a qualified mentor with a passion for helping people.

- vi. **Recommendation 6:** There should be further investigation into leadership in pharmacy. Changing business management culture requires leadership, and there is evidence to support a potential leadership problem in community pharmacy. Investigations may focus on establishing why there is a potential leadership concern, what current strategies should be implemented across the profession to develop leadership skills. Gaining insight from other industries with leadership culture would assist in guiding community pharmacy in the direction of successful leadership.

An important outcome of this study was discovering 3 key domains, which need to come together in a common vision to address all barriers to community pharmacist business management (Figure 8); from the recruitment of students to their education and pharmacy curriculum, and their continuing education and training in the community pharmacy environment. Informed by the findings of this investigation, these 3 domains form the backbone of a business management content flowchart (Figure 8). Our recommendation to the profession is to propose a common vision to unify the profession's stakeholders, potentially improving patient health outcomes through increasing the business management capabilities of the community pharmacist. Effective business management skills create systems that are sustainable to ensure the professions clinical skills are delivered to patients. Failing in business management results in a failure to deliver effective clinical health care to patients^{5,6}. The steps to improve business management is illustrated in a flowchart, Figure 8, and outlines the roles and relationships across 3 key domains. This is the challenge for the profession, for leaders to influence change directed towards a common mutually beneficial purpose.

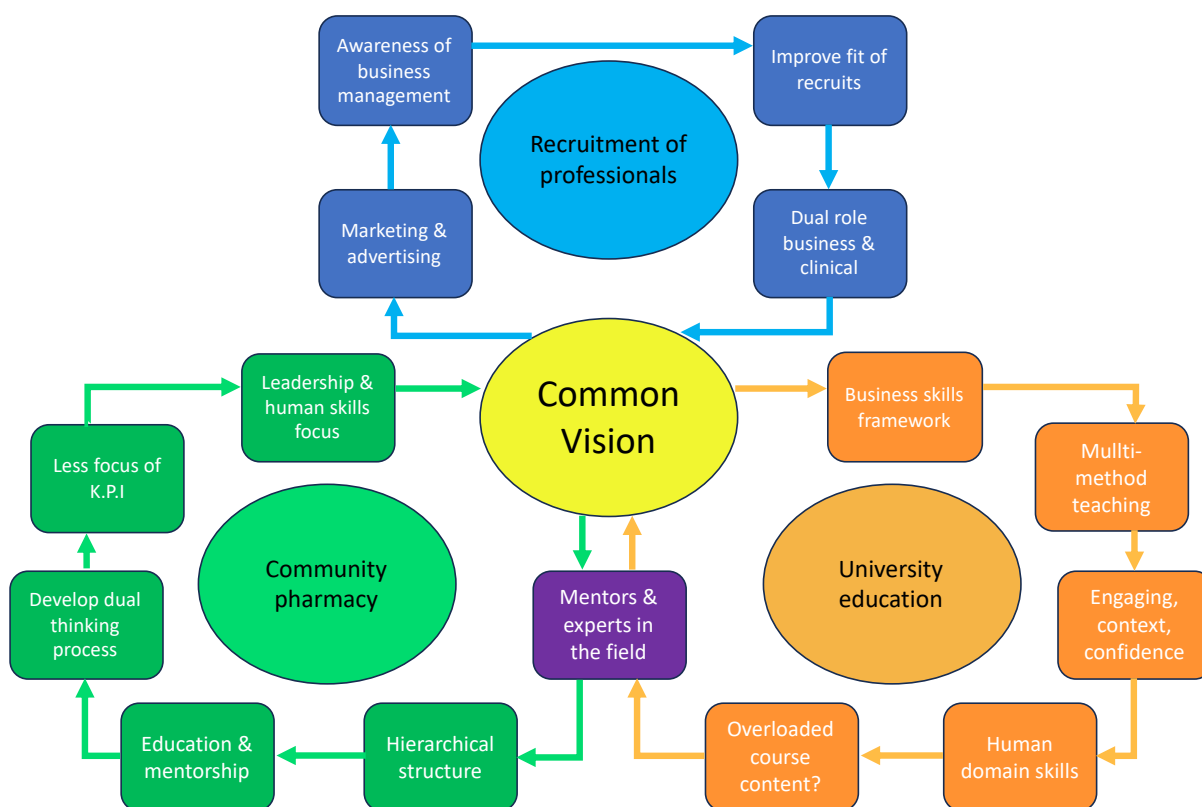


Figure 8 Community pharmacist business management framework for the recruitment of students, education in the pharmacy program, and community pharmacy practice.

6.3 Future directions

The business management role of the community pharmacist is a field of current interest. An important recommendation from this study was guiding the future direction of research towards investigating the leadership role. Our findings indicate that improving the business management practices across the profession are potentially hindered by current leadership in community pharmacy. Business management and leadership are different roles but do overlap to some extent; wanting the best for the people who work in the organization. It may not be a coincidence that one recommended strategy in chapter 5 “help colleagues as you would your patients” addresses this overlap between leadership and business management. ‘Change’ and ‘culture’ are two potential topics of interest in leadership investigations. Perhaps incorporating Albert Bandura’s social learning theory as a theoretical framework into future leadership studies, observing if ‘change’ and ‘culture’ can be influenced by community pharmacists with a passion for “helping colleagues as you would your patients”. This has potential to answer the question: What are the patient health and business outcomes when a community pharmacy operates under a leadership structure that empowers personnel and nurtures a growth mindset?

The goal of this research was to improve the business management capabilities of the community pharmacist. Several recommendations were made to achieve this goal, and the outcomes of these strategies need to be reviewed and refined. The Kolb cycle is a potential learning system educators can employ to reflect upon the observed outcomes of this studies recommendations⁷. The Kolb cycle is a four-stage effective learning process or cycle, involving feeling (experience), observation/reflection (watching), conceptualization (thinking), and doing (experimentation). This study has provided the profession with intellectual nourishment to improve the business management capabilities of community pharmacists. Employing the Kolb cycle alongside the recommendations in this thesis is a long-term strategy to ensure educators continually improve this important role of the community pharmacist.

6.4 Limitations

Limitations exist in this study. This investigation involved a small number of participants across 2 states in Australia and careful consideration should be made when generalizing these findings to other geographical locations. The business management content covered in curricula changes across pharmacy schools and countries, and this will likely impact the generalizability of our findings. Expanding this work to include other states in Australia and/or countries via investigating community pharmacists and pharmacy students' perceptions of business management will further the professions' knowledge on this field. Community pharmacy in Australia operates under the Pharmaceutical Benefits Scheme and this may influence the business management experiences described from participants in this study⁸. Countries including the USA or UK have different prescription medication reimbursement models and this may affect the business management practice experiences of these community pharmacists, which may differ from our findings.

The Queensland and Tasmanian branches of the Pharmacy Guild of Australia (PGA) assisted this research by assisting to recruit volunteer community pharmacists to participate in interviews. The PGA represents community pharmacy owners⁹. Although the PGA recruited participants with various community pharmacist roles, all contacted community pharmacists described having managerial responsibilities in their community pharmacist duty. Potentially, the PGA, who represent pharmacy owners, may associate with more business focused community pharmacies and this may have influenced our findings, perhaps favourable to improve business management skills. Finally, our investigation was conducted during the Covid-19 pandemic. Several community pharmacists stated this was a stressful time with the profession facing many challenges, and this too may have inadvertently impacted our findings.

In conclusion this study has delivered a comprehensive view of the business management skills required for a community pharmacist by exploring the perceptions of community pharmacist stakeholders and pharmacy students. Initially synthesising research contributions to the field, this investigation has provided a business management skills framework and outlined several recommendations to improve the business management skills within community pharmacy. Changing community pharmacist managerial culture is a challenge but will likely be more successful through implementing the strategies identified from the participants in this investigation.

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6.6 Researcher reflections

This is the most important part of my research journey, reflection. What did I learn when reflecting on this experience and how will I use this information to implement change? To answer this question, I am going to discuss my thought process from the perspective of personal development and apply my own lens on community pharmacist business management.

Being an owner operator of a community pharmacy, and more recently assisting with the education of pharmacy students, I believed there was an opportunity to improve the health outcomes of the community through increasing the business management competency of the community pharmacist. Although I held this belief, I had to be asked if I was interested in studying this field to consider education and research as a potential career option. What I did not expect was to be humbled by this experience. Academically there was a steep learning curve, which required me to change my behaviour to transition into a student researcher. This was a challenge. My attitude was a barrier, and I did things on my own terms. Why? Because for the previous 15 years that is how I was successful in business. When you behave in a certain way and achieve success, it is difficult to listen to others and change those behaviours. Thinking about success, this word means something different to me now, and this meaning cannot be measured by profit.

My attitude and behaviour towards research were positively influenced from completing a higher degree education course; Evidence Based Research Methodologies for Health Professionals. This introduced me to quantitative statistics, qualitative analysis, and theoretical frameworks. This sparked a passion for research, philosophy, and psychology, all educational subjects I have previously not valued. I have grown professionally from learning this content, I view and interact with the world differently. I am developing into a kinder and more valuable person to contribute to society. I have learned to listen more, be open to other people's interpretation whilst disregarding my own formed views and potential bias. I think this has shaped me into being a more compassionate person, we all have different experiences and opportunities in life, we can learn from each other if we are willing to listen. I have often thought, if this knowledge was completely absent from my education, would there be potential benefits in integrating this content into pharmacy curricula?

This is challenging to write, but during this research process I discovered I too have a lot to learn about effective business management. It is a humbling experience to be vulnerable and learn you are quite average in a field you are supposed to be qualified. With this reflection and honesty allows an opportunity for growth. I think this same growth mindset would be a valuable experience for the

pharmacy profession when reflecting on the research findings on business management in this thesis. This is a small study, but I am concerned about the lack of education in human domain managerial skills, and this provides an explanation why many community pharmacists find this role challenging. Identifying the opportunity for community pharmacists to improve their education in empathy, resilience, teamwork, self-awareness, personnel management, leadership and other human domain skills could be beneficial to the profession.

Research is an interesting career pathway and I'm glad I persisted with this journey despite challenges. Reflecting on how I could have better prepared myself for this Masters Study, I think a better understanding on research theoretical frameworks and improving my baseline level of academic writing would have been beneficial. I enjoyed working with humans as research participants and found listening to their perceptions enlightening. Transcribing focus groups and interviews was an unexpectedly effective tool for improving my own communication. I am uncertain how the knowledge gained from this experience has impacted my future, but I suspect it may have directed me towards the field of leadership.

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8 APPENDICES

Scoping review database search strategy.	A
Summary of extracted business management skills.	B
Pharmacy students rank of importance on managerial skills.	C
Pharmacy students survey.	D
Pharmacy student information sheet.	E
Pharmacy student consent form.	F
Pharmacy student focus group framework.	G
Pharmacy student preferred teaching method(s).	H
COREQ checklist.	I
Community pharmacist information sheet.	J
Community pharmacist consent form.	K
Community pharmacist interview framework.	L
Community pharmacist unique population code.	M
Summary of community pharmacist described managerial skills.	N

Appendix A:

Table A1: Electronic database search strategy following the preferred reporting items for systematic reviews and meta-analyses extension for Scoping Reviews (PRISMA-ScR)⁶¹.

Database	Keywords	Limitations	Resulting literature identified	Literature articles included post-screening
ERIC	pharmacy leadership management universities pharmaceutical education	English language	84	5
Emerald/Insight	pharmacy management managerial skills leadership university students	English language	255	2
ABI/Inform	pharmacy* AND management AND (Managerial Skills) AND leadership AND (colleges and universities) AND pharmacist	English language	4225	8
CINAHL	((MH "Students, Pharmacy") AND (MH "Pharmacist Attitudes") AND (MH "Pharmacy Service") AND (MH "Pharmacists") AND (MH "Education, Pharmacy")) AND management skills	English language	34	3
WOS	Pharmacy Management Education Business	English language	16	8
MEDLINE	Pharmacists/ or Pharmacies/ or Community Pharmacy Services/ AND Self-Management/ or	English language	504	30

	Humans/ AND Schools, Pharmacy/ or Education, Pharmacy/ or Pharmacy/ or Education, Pharmacy, Continuing/ or Students, Pharmacy/ or Education, Pharmacy, Graduate/ or Pharmacy Administration/ AND Employment/ or "Attitude of Health Personnel"/ or Curriculum/			
Google Scholar		English language	28	28

Appendix B:

Table B1: Summary of the assignment of all identified management skills and aptitudes to a reduced set of terms. Proportions were calculated as the number of occurrences divided by the total number of studies (Total publications: Students=12, Pharmacy stakeholders=19, Note: 3 publications overlap and are included in both the student and pharmacy stakeholder counts).

Management skills and aptitudes identified from studies	Management skill or aptitude	Student total	Pharmacy stakeholder total	Student proportion	Pharmacy stakeholder proportion
Conceptual					
Generic business management, human resources, management, materials management, evaluation, rosters, assigning tasks, dealing with mail, filing, clerical work, merchandising, having business management skills, knowing how to get goals achieved, theft prevention and legal action.	General business management	7	16	0.58	0.84
Problem solving and critical thinking, decision making, reasoning, methodological, troubleshooting.	Problem solving	6	13	0.50	0.68
Operations specific to pharmacy, opening/closing procedures, specific requirements for community pharmacy operation, clinical expertise and knowledge to perform the role, knowledge of the working of the industry.	Pharmacy operations	5	12	0.42	0.63
Organisational skills, planning, logical systems, goal setting, clear objectives.	Organisational skills	3	10	0.25	0.53

Innovation, creative ideas, adapt to change, imaginative.	Innovation	2	8	0.17	0.42
Business planning, planning new pharmacy operations/viability, expansion/ growth succession planning, short and long-term planning, disaster planning, facilities and equipment planning, construction, renovations, strategic planning, succession planning.	Business planning	3	7	0.25	0.37
Inventory management, dispensary stock control, front store stock control, merchandising.	Inventory management	2	6	0.17	0.32
Relationship building, health professionals, political level.	Networking and relationships	0	6	0.00	0.32
Retail operations, traffic flow, theft, stock levels, inventory layout, merchandising.	Retail operations	2	5	0.17	0.26
Wholistic perspective, bigger picture.	Larger perspective	1	4	0.08	0.21
Entrepreneurship, risk verse benefit of new opportunities.	Entrepreneurship	2	3	0.17	0.16
Human					
Communication with patients, staff and professional, active listening, use of language, negotiation, writing, cultural sensitivity, effective listening, peer to peer, manager to subordinate, culturally aware.	Communication	9	18	0.75	0.95
Professionalism, behaviour, integrity, trust, attitude, mannerism,	Professionalism	7	18	0.58	0.95

punctuality, not being arrogant or overconfident.					
Leadership and a desire to do so, assertiveness, confidence power and influence, respect, getting the best out of people and acknowledging their strengths, empower people, mentoring.	Leadership	5	15	0.42	0.79
Teamwork/ delegation, team builder.	Teamwork	5	14	0.42	0.74
Customer service, customer care, provider mentality, patient advocate.	Customer care	3	12	0.25	0.63
Self-awareness, strengths and weaknesses, knowing when to ask for help/ limitations, take responsibility for evaluation of one's own work, social intelligence, competitive, reflective.	Self-awareness	4	11	0.33	0.58
Personnel management, personable, staff training, hiring, education of work experience students, educator, motivation, mentoring, dispensary staff, front of store staff, directing people, coaching, growth and development.	Personnel management	4	10	0.33	0.53
Ethics, act and behave in an ethical manner, have in inherent sense of right and wrong, environmental impact conscious.	Ethics	5	10	0.42	0.53
Initiative/self-motivation, independence/ proactive, enthusiasm, flair, right attitude,	Self-driven	5	10	0.42	0.53

passion for pharmacy, positive, dedicated.					
Adaptability, change agile, make change effectively.	Adaptability	3	8	0.25	0.42
Empathy towards staff, customers and health professionals.	Empathy	3	8	0.25	0.42
Time management, efficiency.	Time management	4	8	0.33	0.42
Ambition -motivation, risk taking, competitiveness, desire to succeed within the profession.	Ambition	2	7	0.17	0.37
Conflict resolution, conflict management, conflict between professional and non-professional roles, company policy verse professional duty, staff conflict, role conflict, humility, conflict handling for specific situations.	Conflict resolution	3	5	0.25	0.26
Stress management, deal with unpleasant situations without influencing one's emotions, work-life balance.	Stress management	0	5	0.00	0.26
Confidence, impose wishes, accept authority and deliver competently, trust their knowledge and skills, self-confidence.	Confidence	2	3	0.17	0.16
Job repetitiveness.	Affinity to role repetitiveness	0	1	0.00	0.05
Technical					
Remaining up to date, professional development, maintaining a recency of knowledge from literature, career progression, evaluating and improving	Professional development	3	13	0.25	0.68

management skills, reading the professional literature, using mentors and experts to improve, willingness to learn, growth and development.					
Financial analysis, wages, cash on hand, tax returns, reporting, make decisions based on financial projections, profit versus service, accounts, budgets, assessment of short- and long-term position, cash flow.	Financial analysis	5	11	0.42	0.58
Marketing and promotion, advertising.	Marketing and promotion	3	9	0.25	0.47
Business acumen, business sense	Business acumen	2	2	0.17	0.11
Pharmacy law, pharmacy regulations, regulatory requirements, accreditations.	Pharmacy law	4	10	0.33	0.53
Technology, software, understanding and competent with computer hardware/software, understand when to take advantage of technology advancements in the industry (robotic dispensing), computer software techniques.	Technology	0	6	0.00	0.32
Business models, independent, chain pharmacy, banner group, compounding, understanding between different business structures.	Business model diversity	1	3	0.08	0.16
Work experience opportunities in pharmacy practice, previous experience in management,	Prior experience	2	2	0.17	0.11

placement experience in management, life experience.					
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Appendix C:

Table C1: Pharmacy students' rank of importance for business management skills.

Skills	Very important	Important	Neither unimportant or important	Unimportant	Very unimportant	Did Not Complete
Conceptual						
Pharmacy operations	27	13	1	-	-	8
Problem solving	26	15	-	-	-	8
Organisational skills	24	14	3	-	-	8
Networking and relationship building	22	12	4	1	1	9
Bigger picture / larger perspective	20	15	4	2	-	8
Inventory management	19	17	2	3	-	8
Retail operations	15	18	4	4	-	8
General business management	13	18	10		-	8
Innovation	12	21	5	3	-	8
Entrepreneurship	10	11	15	5	-	8
Business planning	9	17	13	2	-	8
Human						
Communication	36	4		-	1	8
Being ethical	36	2	2	-	1	8
Customer care	34	6	1	-	-	8
Professionalism	33	7		-	1	8
Empathy	32	4	4	1		8
Time management	30	10	1			8
Self-awareness	27	13	1			8
Conflict resolution	27	12		2		8
Teamwork	26	14			1	8
Adaptable	25	13	2		1	8
Confidence	24	17				8
Dedication	24	11	4	1	1	8
Personnel management	22	13	6			8
Stress management	21	19	1			8

Being proactive	21	14	3	1	1	8
Ability to perform repetitious roles	18	18	3	1	1	8
Leadership	16	18	6		1	8
Independent	12	19	7	2	1	8
Ambition, risk taking	4	16	10	9	2	8
Technical						
Pharmacy law	32	9				8
Professional development	25	15	1			8
Technology	15	23	3			8
Business acumen	13	17	8	3		8
Marketing and promotion	12	16	7	5	1	8
Business model diversity	10	18	8	5		8
Financial analysis	10	15	12	4		8
Prior business management experience/ opportunity	7	14	13	6	1	8

Appendix D:

Pharmacy student survey: year 1 and year 4 across JCU and UTAS.

Please complete the table (demographics table):

Which university are you currently studying pharmacy?	James Cook University University of Tasmania
What year of the degree are you in?	Year 1 Year 4
Gender?	Male Female Other Prefer not to say
Which would best describe your entrance into the pharmacy degree (when you entered the first year of the degree)?	Recent high school graduate Mature age student I have previously undertaken another degree – specify
What field of pharmacy are you hoping to practice in?	Community pharmacist Hospital pharmacist Research Education Academic pharmacy Consultant pharmacist Locum pharmacist Aged care pharmacist Non-dispensing (General Practice) pharmacist

	<p>Non-dispensing (Aboriginal Health services) pharmacist</p> <p>Pharmaceutical Industry</p> <p>Pharmacy Regulation (licensing and legal compliance/TGA)</p> <p>Pharmacy policy and procedural roles (government or private sector e.g. PSA, Pharmacy Guild etc.</p> <p>OTHER</p>
<p>What best describes the location of pharmacy that you want to work in, (based on the Modified Monash Category 2019)?</p>	<p>MM1: Major city</p> <p>Major cities, population > 500,000 residents</p> <p>MM2: Regional centres</p> <p>Located within 20km of a town > 50,000 residents</p> <p>MM3: Large rural towns</p> <p>Located within a 15km drive of a town between 15,000 – 50,000 residents)</p> <p>MM4: Medium rural towns</p> <p>Located within a 10km drive of a town between 5,000 and 15,000 residents)</p> <p>MM5: Small rural towns</p> <p>Located in areas < 5,000 residents</p> <p>MM6: Remote communities</p> <p>Remote mainland areas and remote islands less than 5km offshore</p> <p>MM7: Very remote communities</p>

	Very remote areas and remote islands greater than 5km offshore
Please specify which answer would best represent your work experience in a community pharmacy setting?	<p>a) NO, I have not previously worked in a community pharmacy.</p> <p>b) Yes, I have worked in a community pharmacy, but only on compulsory placement during the university degree</p> <p>c) Yes, I have worked as a casual staff member in a community pharmacy during the university degree</p> <p>d) Yes, I have worked in a community pharmacy prior to undertaking the pharmacy degree.</p>

Question 1.

In regards to business management in the pharmacy curriculum, please select the most appropriate answer:

Questions	True	False	Unsure
Business management is essential to the role of a community pharmacist			
I will be taught business management during my pharmacy education			
I am interested in learning about pharmacy business management			
Learning pharmacy business management skills will help me in my career as a pharmacist			
I am not interested in pharmacy ownership, so learning pharmacy business management is not a priority for me			

Questions 2:

Think about the role of a pharmacy in community pharmacy. From the following list, please indicate how importance you perceive each skill or aptitude to be for a community pharmacist.

Skill or aptitude	1 Unimportant	2 Slightly important	3 Moderately important	4 Important	5 Very important
Communication					
Professionalism					
Leadership					
Teamwork					
Being ethical					
Dedication					
Being proactive					
Independent					
Adaptable					
Innovation					
Ambition, risk taking					
Empathy					
Conflict resolution					
Customer care					
Personnel management					
Self-awareness					
Confidence					
Entrepreneurship					

Stress management					
Ability to perform repetitious roles					
General business management skills					
Problem solving					
Pharmacy operations					
Organisational skills					
Business planning					
Time management					
Retail operations					
Inventory management					
Identify the big picture or larger perspective					
Networking and relationship building					
Financial analysis					
Marketing and promotion					
Professional development					
Business acumen (make decisions					

with the business in mind)					
Technology skills					
Pharmacy law					
Understand the difference between various 0business models					
Prior experience and opportunity with business management					
Participant response: 1					
Participant response: 2					
Participant response: 3					
Participant response: 4					
Participant response: 5					

Question 3:

In relation to your perception of the role of a community pharmacist, please select the most appropriate answer to the following statements:

Practicing as a community pharmacist is a dual role, requiring both clinical skills and	Strongly Disagree	Disagree	Undecided	Agree	Strongly agree
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business management skills.					
A community pharmacist will routinely perform business management tasks that require specific skills and aptitudes.	Strongly Disagree	Disagree	Undecided	Agree	Strongly agree
I expect the university training in pharmacy business management to give me the knowledge and the ability to apply business management skills in a community pharmacy setting.	Strongly Disagree	Disagree	Undecided	Agree	Strongly agree
I expect to have confidence in my ability to perform business management skills at the completion of the pharmacy degree.	Strongly Disagree	Disagree	Undecided	Agree	Strongly agree
I expect the pharmacy degree to provide the training in business management to a level required to perform the role of a community pharmacist.	Strongly Disagree	Disagree	Undecided	Agree	Strongly agree
I am looking forward to learning the business management component of the community pharmacist.	Strongly Disagree	Disagree	Undecided	Agree	Strongly agree
The role of a community pharmacist would benefit from undertaking further training in business management post-degree.	Strongly Disagree	Disagree	Undecided	Agree	Strongly agree
The business management skills	Strongly Disagree	Disagree	Undecided	Agree	Strongly agree

of a community pharmacists will need to be as strong as their clinical/professional skills.	Disagree				agree
The role of a community pharmacist would benefit from prioritising more time towards the business management component in the pharmacy education curriculum.	Strongly Disagree	Disagree	Undecided	Agree	Strongly agree
Community pharmacists are trained and competent to perform the required business management skills of their role.	Strongly Disagree	Disagree	Undecided	Agree	Strongly agree

Question 4:

Given some of the business management skill or aptitudes required in community pharmacy. Please indicate whether you identify that these are included in your curriculum or not how you would prefer to learn and master each skill or aptitude: (you may select more than one method if deemed appropriate)

Lectures and tutorials: lectures delivered online to students with the use of visual aids, and tutorials.

Workshops (including case studies and role play): pharmacy scenarios brought into the classroom to teach students from content they can identify having relevance to practice. This will allow students to both learn and apply the skills.

Mentoring from pharmacist in practice: pharmacists in practice offering to mentor students in business practice – establishing a mentorship program.

Community pharmacy placement: exposure during placement to business management skills in a pharmacy setting, such as implementing a professional service in a real practice setting.

Business assignment: potential for students to become involved, mentored by a community pharmacist to develop a business plan for a fictitious pharmacy.

Skill or aptitude	Lectures and tutorial	Workshops	Mentoring	Community pharmacy placement	Business assignment	Another teaching method?	Students are not required to learn this skill/ aptitude
Communication							
Professionalism							
Leadership							
Teamwork							
Being ethical							
Dedication							
Being proactive							
Independent							
Adaptable							
Innovation							
Ambition, risk taking							
Empathy							
Conflict resolution							
Customer care							
Personnel management							
Self-awareness							
Confidence							

Entrepreneurship							
Stress management							
Ability to perform repetitious roles							
General business management skills							
Problem solving							
Pharmacy operations							
Organisational skills							
Business planning							
Time management							
Retail operations							
Inventory management							
Identify the big picture or larger perspective							
Networking and relationship building							
Financial analysis							

Marketing and promotion							
Professional development							
Business acumen (make decisions with the business in mind)							
Technology savvy							
Pharmacy law							
Understand the difference between various business models							
Prior experience and opportunity with business management							
Participant response: 1							
Participant response: 2							
Participant response: 3							
Participant response: 4							
Participant response: 5							

Question 5: (Open ended questions):

Is there any additional information you would like to share about business management in community pharmacy?

In order to identify potential volunteers for the second phase (qualitative; focus groups) of the research, the survey will end asking the respondent if they would like to participate in the next stage of the research. A respondent that clicks 'YES', will be asked to input their email address to identify them.

** Please click on the link below if you would like to participate in the next phase of the research. **

[YES, I would like to participate in further research involved in this study](#)

[.....please enter your email address.....](#)

Appendix E:

Pharmacy student information sheet (focus groups).



PROJECT TITLE: Pharmacy management in the curriculum: perspectives of students and pharmacists.

You are invited to take part in a research project looking at identifying the business management skills or aptitudes required by a community pharmacist and exploring the best method of teaching the skill/aptitude in the curriculum. The study is being conducted by **Prof Beverley Glass** and will contribute to the Masters of Philosophy (Health) for Braedon Davey at James Cook University.

To gather data for the research project, pharmacy students from year 1 and year 4 from both James Cook University (Townsville) and The University of Tasmania (Hobart) will be invited to take part in the study. If the topic is of interest and you agree to be involved, you will be invited to take part in a focus group using an on-line platform (e.g. Zoom). The focus groups are voluntary and with your consent, will be audio-recorded to help assist with the data collection for the project. The focus groups are expected to take approximately 30 minutes and will be conducted on a mutually agreed date/time.

Focus groups are useful in exploring new research topics that have not been well researched before. During the focus groups, you will be asked for consent to allow audio-recording. You can stop participating in the focus group at any time or you may choose not to answer a question.

Taking part in this study is completely voluntary and you can cease participating in the study at any time without explanation or prejudice. If you choose to leave the study, you may withdraw all unprocessed data, which will be excluded from the research.

Data obtained from the focus groups will be stored in a secure location and will remain anonymous by the removal of any identifying information that was included.

The data from the study will be used in the aforementioned Master's thesis, research publications, conference presentations and reports. You will not be identified or identifiable in any way in these publications.

If you would like to participate or have any questions about the study, please contact:

Braedon Davey (Principal Investigator) or Prof Beverley Glass (Primary Supervisor)

Mr Braedon Davey

Medicine and Dentistry

James Cook University

Phone:

Email: Braedon.Davey@my.jcu.edu.au

Prof Beverley Glass

Medicine and Dentistry

James Cook University

Phone:

Email: Beverley.Glass@jcu.edu.au

Appendix F:



Pharmacy student informed consent form: Focus groups.

PRINCIPAL INVESTIGATOR	Braedon Davey
PROJECT TITLE:	Pharmacy management in the curriculum: perspectives of students and pharmacists
COLLEGE:	Medicine and Dentistry

I understand the aim of this research study is to **explore what business management skills/aptitudes are required for a community pharmacist and how those skills/aptitudes identified could be taught in the pharmacy curriculum.**

I consent to participate in this project, the details of which have been explained to me, and I have been provided with a written information sheet to keep.

I understand that my participation will involve a **focus group** and I agree that the researcher may use the results as described in the information sheet.

I acknowledge that:

- taking part in this study is voluntary and I am aware that I can stop taking part in it at any time without explanation or prejudice and to withdraw any unprocessed data I have provided;
- that any information I give will be kept strictly confidential and that no names will be used to identify me with this study without my approval;
- confidentiality cannot be assured in focus groups.

(Please tick to indicate consent)

EXAMPLES ONLY: PLEASE DELETE ITEMS NOT RELEVANT TO YOUR PROJECT AND INSERT ITEMS WHICH ARE RELEVANT

I consent for the focus group to be audio recorded	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
I consent to participate in a focus group	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No

Name:(printed)	
Signature:	Date:

Appendix G:

Pharmacy student focus group framework

Research question 1:

Can you describe the different roles the community pharmacist would normally perform during a routine workday?

(Prompts as below if required)

- a) When describing the different pharmacist roles, can you discuss if you think the skills for the role are of a clinical or business management nature?
 - a. Example if required: dispensing clinical and staff business management
- b) In what ways would these roles or skills change depend on the type of community pharmacy setting?
 - a. (banner/discount/independent), (Urban pharmacies vs rural/remote)

Research question 2:

Can you discuss if the skills the community pharmacist require change depending on the position held in the pharmacy?

(Prompts as below if required)

- a) Describe those roles and skills involved
 - a. Newly registered pharmacist
 - b. Pharmacist manager (non-pharmacist qualification vs pharmacist manager pros/cons)
 - c. Owner
 - d. Describe how you think the pharmacists in these roles are trained to perform this duty?

Research question 3:

Thinking about the different duties of the community pharmacist, what do you see as the business management role?

(Prompts as below if required)

- a) Can you describe the positives, negatives (what experiences caused those opinions?).
- b) How do you feel about the clinical role verse business management role?
- c) From your experiences with pharmacy management, can you discuss in what way this may have influenced your choice in your future career in pharmacy (hospital).

Research question 4:

If you were planning a business management course for pharmacy students, can you describe how you would implement this, what would be the content and how would it be taught?

(Prompts as below if required)

- a) Examples of teaching (lectures, workshops, assignments, placement, mentors)
- b) How many subjects within the curriculum are required to prepare you for the role?
- c) Can you discuss which years should include this subject material (why?)
- d) What are your thoughts about core management content and optional extra-curricular content being offered?
 - a. How do you think we define what is core and optional teaching material?
- e) In what ways are there positives and negatives of teaching management using a particular method (mentors, workshops, assignments, placement).

Research question 5:

Can you describe what you think about the expanding professional roles of the community pharmacist?

(Prompts as below if required)

- a) Expanding role of the community pharmacy is the shift towards patient care outcome focussed services and being paid for those roles (e.g., diabetes educator, sleep apnoea consultant, vaccination services). This is a shift away from dispensing prescriptions being the dominant income source for community pharmacists.

- b) What are your opinions on the role of the business management skills of community pharmacists in the shift towards expanded professional services?

Research question 6:

I have now covered most of the information I was hoping to discuss with you. Can think of anything else you would like to add, or do you have any questions?

Examples of probes and cues that could be used during the focus group:

- a) That is very interesting, can you tell me more about that.
- b) What you saying now is very important, I want to ensure I get exactly what you mean: can you please explain some more
- c) That's extremely helpful. I'd appreciate it if you could give a little more detail.
- d) I'm beginning to get the picture, but another few examples may help.
- e) When you said pharmacy management is "...", what exactly did you mean by "..."?
- f) This is very useful information. Can you provide any more details about this?

Appendix H:

Table H1: Pharmacy student preferred teaching method(s) of business management skills.

Skills	Lectures and tutorial	Workshops	Mentoring	Community pharmacy placement	Business assignment	Students are not required to learn this skill/ aptitude	No opinion	Other
Conceptual								
Inventory management	4	3	2	14	4	1		
Pharmacy operations	7	3	2	14	2			
Retail operations	5	1	2	13	5	1	1	
Networking and relationship building	3	6	7	11				Networking events
Organisational skills	3	11	3	7	2		2	
Bigger picture / larger perspective	10	6	3	5	3		1	
Problem solving	7	14	2	4	1			
Business planning	7	2	4	3	11	1		
Entrepreneurship	7	4	2	3	11	2		
Innovation	5	7	4	3	8	2	2	
General business management	7	4	4	2	10	1		
Human								

Customer care	3	7		18				
Ability to perform repetitious roles	5	4		16			3	
Adaptable	3	11	1	16				
Being proactive	6	7	4	14			1	
Communication	6	19	1	12	1			
Confidence	1	7	9	12				
Empathy	3	9	3	12			2	Not sure how to teach
Independent	6	6	4	10	4	1		Independent learning from all other skills
Dedication	5	4	9	7	1	2	4	
Leadership	8	10	12	7	1			
Professionalism	9	10	10	7	2			
Personnel management	7	7	3	6	4	1	1	
Teamwork	3	21	4	6	1			Teamwork activities
Time management	8	7	2	6	2		2	Combination of all methods
Self-awareness	5	8	9	4	1		1	

Stress management	4	10	10	4				Lectures, workshops and mentoring
Being ethical	19	6	3	4	1			
Conflict resolution	1	21	4	3				Combination of workshop and placement
Ambition, risk taking	5	5	9	2	1	4	4	
Technical								
Professional development	9	10	1	7			1	
Prior business management experience / opportunity	3	7	5	6	3	2	2	
Technology	10	8	2	6		2		
Business acumen	7	2	3	3	10	2	1	
Marketing and promotion	9	4	3	2	9	1		
Business model diversity	11	5	1	1	8	1		
Financial analysis	8	3	2	1	13	1		
Pharmacy law	21	4	2	1				

Appendix I:

COREQ (COnsolidated criteria for REporting Qualitative research) Checklist

A checklist of items that should be included in reports of qualitative research. You must report the page number in your manuscript where you consider each of the items listed in this checklist. If you have not included this information, either revise your manuscript accordingly before submitting or note N/A.

Topic	Item No.	Guide Questions/Description	Reported on Page No.
Domain 1: Research team and reflexivity			
<i>Personal characteristics</i>			
Interviewer/facilitator	1	Which author/s conducted the interview or focus group?	3
Credentials	2	What were the researcher's credentials? E.g. PhD, MD	Pharmacist
Occupation	3	What was their occupation at the time of the study?	Pharmacist
Gender	4	Was the researcher male or female?	Male
Experience and training	5	What experience or training did the researcher have?	N/A
<i>Relationship with participants</i>			
Relationship established	6	Was a relationship established prior to study commencement?	N/A
Participant knowledge of the interviewer	7	What did the participants know about the researcher? e.g. personal goals, reasons for doing the research	N/A
Interviewer characteristics	8	What characteristics were reported about the interviewer/facilitator? e.g. Bias, assumptions, reasons and interests in the research topic	Supplementary
Domain 2: Study design			
<i>Theoretical framework</i>			
Methodological orientation and Theory	9	What methodological orientation was stated to underpin the study? e.g. grounded theory, discourse analysis, ethnography, phenomenology, content analysis	3
<i>Participant selection</i>			
Sampling	10	How were participants selected? e.g. purposive, convenience, consecutive, snowball	3
Method of approach	11	How were participants approached? e.g. face-to-face, telephone, mail, email	3
Sample size	12	How many participants were in the study?	4
Non-participation	13	How many people refused to participate or dropped out? Reasons?	N/A
<i>Setting</i>			
Setting of data collection	14	Where was the data collected? e.g. home, clinic, workplace	3
Presence of non-participants	15	Was anyone else present besides the participants and researchers?	N/A
Description of sample	16	What are the important characteristics of the sample? e.g. demographic data, date	3
<i>Data collection</i>			
Interview guide	17	Were questions, prompts, guides provided by the authors? Was it pilot tested?	3
Repeat interviews	18	Were repeat interviews carried out? If yes, how many?	N/A
Audio/visual recording	19	Did the research use audio or visual recording to collect the data?	3
Field notes	20	Were field notes made during and/or after the interview or focus group?	N/A
Duration	21	What was the duration of the interviews or focus group?	4
Data saturation	22	Was data saturation discussed?	N/A
Transcripts returned	23	Were transcripts returned to participants for comment and/or	N/A

Topic	Item No.	Guide Questions/Description	Reported on Page No.
		correction?	
Domain 3: analysis and findings			
<i>Data analysis</i>			
Number of data coders	24	How many data coders coded the data?	1
Description of the coding tree	25	Did authors provide a description of the coding tree?	3,4
Derivation of themes	26	Were themes identified in advance or derived from the data?	3,4
Software	27	What software, if applicable, was used to manage the data?	3
Participant checking	28	Did participants provide feedback on the findings?	N/A
<i>Reporting</i>			
Quotations presented	29	Were participant quotations presented to illustrate the themes/findings? Was each quotation identified? e.g. participant number	5,6,7,8
Data and findings consistent	30	Was there consistency between the data presented and the findings?	N/A
Clarity of major themes	31	Were major themes clearly presented in the findings?	5,6,7,8
Clarity of minor themes	32	Is there a description of diverse cases or discussion of minor themes?	N/A

Developed from: Tong A, Sainsbury P, Craig J. Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. *International Journal for Quality in Health Care*. 2007. Volume 19, Number 6: pp. 349 – 357

Once you have completed this checklist, please save a copy and upload it as part of your submission. DO NOT include this checklist as part of the main manuscript document. It must be uploaded as a separate file.

Please note, the pages relating to the COREQ checklist are relevant to the published article in the journal *Pharmacy*, which can be accessed: doi:<https://doi.org/10.3390/pharmacy11030098>

Appendix J:



Community pharmacist information sheet: Interviews.

PROJECT TITLE: Pharmacy management in the curriculum: perspectives of students and pharmacists.

You are invited to take part in a research project looking at identifying the business management skills or aptitudes required by a community pharmacist and exploring the best method of teaching the skill/aptitude in the pharmacy curriculum. The study is being conducted by **Prof Beverley Glass** and will contribute to the Masters of Philosophy (Health) for Braedon Davey at James Cook University.

To gather data for the research project, community pharmacists like yourself will be invited to take part in the study. If the topic is of interest and you agree to be involved, you will be invited to be interviewed over the phone. The interview process is voluntary and with your consent, will be recorded to help assist with the data collection for the project. The interview process is expected to take approximately 20 minutes and will be conducted at a mutually agreed date/time.

Interviews are useful in exploring new research topics that have not been well researched before. During the interview, you will be asked for consent to allow audio-recording, you can stop the interview anytime or you may choose not to answer a question.

This study is reliant on getting enough consenting participants to allow collection of robust data to analyse. Please pass on this information sheet to any community pharmacists that maybe willing to volunteer for the research project.

Taking part in this study is completely voluntary and you can cease participating in the study at any time without explanation or prejudice. If you choose to leave the study, you may withdraw all unprocessed data, which will be excluded from the research.

Data obtained from the interviews will be stored in a secure location and will remain anonymous by the removal of any identifying information that was included.

The data from the study will be used in the aforementioned Master's thesis, research publications, conference presentations and reports. You will not be identified or identifiable in any way in these publications.

If you would like to participate or have any questions about the study, please contact:

Braedon Davey (Principal Investigator) or Prof Beverley Glass (Primary Supervisor)

Mr Braedon Davey

Medicine and Dentistry

James Cook University

Phone:

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Prof Beverley Glass

Medicine and Dentistry

James Cook University

Phone:

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Appendix K:



Community pharmacist informed consent form: Interviews.

PRINCIPAL INVESTIGATOR	Braedon Davey
PROJECT TITLE:	Pharmacy management in the curriculum: perspectives of students and pharmacists
COLLEGE:	Medicine and Dentistry

I understand the aim of this research study is **to explore what business management skills/aptitudes are required for a community pharmacist and how those skills/aptitudes identified could be taught in the pharmacy curriculum.**

I consent to participate in this project, the details of which have been explained to me, and I have been provided with a written information sheet to keep.

I understand that my participation will involve an interview and I agree that the researcher may use the results as described in the information sheet.

I acknowledge that:

- taking part in this study is voluntary and I am aware that I can stop taking part in it at any time without explanation or prejudice and to withdraw any unprocessed data I have provided;
- that any information I give will be kept strictly confidential and that no names will be used to identify me with this study without my approval;

(Please tick to indicate consent)

EXAMPLES ONLY: PLEASE DELETE ITEMS NOT RELEVANT TO YOUR PROJECT AND INSERT ITEMS WHICH ARE RELEVANT

I consent to be interviewed	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
I consent for the interview to be audio recorded	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No

Name: <i>(printed)</i>	
Signature:	Date:

Appendix L:

Community pharmacist stakeholder interview framework

Medium:

- 1) Telephone interview (audio-recorded for transcription)
- 2) Semi-structured, funnel-shaped (broad questions to narrow focussed)
 - a. Open and closed questions, with the use of probes and cues
- 3) Duration:15 – 25 minutes (participant is informed of this in the consent form)
- 4) Time: mutually agreed up between participant and researcher
- 5) Consent: signed consent form (prior to interview) and verbal consent immediately prior to interview.

Participants:

Two distinct groups

- 1) Pharmacy stakeholders (n = 6) from Queensland
- 2) Pharmacy stakeholders (n = 6) from Tasmania

Stratified sampling to include the following subgroups in the interview:

- 1) 4 Urban, 4 major regional centre, 2 rural/remote
- 2) 3 Pharmacy owners, 3 Pharmacist assigned in a management role, 3 community pharmacists, 1 pharmacist in an expanded professional service role (e.g., diabetes educator)

Interview guide:

- 1) Researcher introduction
 - a. Good morning, my name is Braedon, I am the lead researcher for the team working on this project. I am extremely appreciative that you were interested in this research and agreed to participate. The information you provide will help community

pharmacists better understand the role of business management and shape the student education curriculum.

- 2) Confirmation of consent.
 - a. May I confirm that you still agree to take part in the interview and verbally consent
- 3) Confirm that the participant agrees to the interview being audio-recorded
 - a. As a reminder, this phone interview is being audio-recorded to make sure I can collect all the information you provide, are you okay with this?
- 4) Research topic is clarified
 - a. You may be aware this project is looking at the business management skills/aptitudes required to be a community pharmacist and how those skills/aptitudes can be taught to pharmacy students during their degree. As this study is collecting the opinions of different roles of community pharmacists, the information you provide about your experience with management in community pharmacy is extremely beneficial.
- 5) Participant is assured of their options during their interview
 - a. Please feel free to let me know if you want to take a break or not answer a question being asked, that is okay.
- 6) Final confirmation to begin interview
 - a. Do you have any questions for me currently? Is it okay to begin the interview questions?

Example of probes and cues that could be used during the interview:

- g) That is very interesting, can you tell me more about that.
- h) What you are saying now is very important, I want to ensure I get exactly what you mean: can you please explain some more
- i) That's extremely helpful. I'd appreciate it if you could give a little more detail.
- j) I'm beginning to get the picture, but another few examples may help.
- k) When you said pharmacy management is "...", what exactly did you mean by "..."?
- l) This is very useful information. Can you provide any more details about this?

Research question 1:

Can you tell me about the different types of roles you undertake during a routine work day as a community pharmacist?

(Prompts as below if required)

- a) When thinking about those different roles you described, what would you consider are the business management skills you require to perform those duties?
 - a. Prompt – need to write a list of the duties from Q1 to guide them (they may forget)
- b) What are the aspects of these managerial roles that you enjoy?
 - a. Prompt with positive or negative experiences with management
- c) When thinking about these business skills you have, how did you acquire or learn them?
 - a. Prompt (university/ on the job / mentor / self-taught / extra training)
- d) Can you discuss if the business management roles you perform as a pharmacist have any impact on your clinical duties (e.g., dispensing).
 - a. Positive or negative impact?
- e) You have mentioned skills that you use during your workday. Now thinking of other community pharmacists, can you talk about any additional skills that maybe required in their roles.
 - a. Depending in location type of pharmacy (brand/independent/discount)
 - b. Role of the pharmacist impact (newly graduated/ pharmacist manager /owner)
 - c. Can you describe what you think are the required skills for the job of the community pharmacist.

Research question 2:

Thinking about the business management roles of the community pharmacist, in what ways could we prepare pharmacy students in the university degree for pharmacy management?

(Prompts as below if required)

- a) What are the types of management skills should be included in the student education?
- b) How could the students be taught those skills?

- a. Potential prompt (lectures, placement, on the job, workshops, mentors, assignments)
- c) How much of the 4-year curriculum should be dedicated towards management?
 - a. Prompt, core verse extra-curricular content.

Research question 3:

Can you describe what you think about the expanding professional roles of the community pharmacist?

(Prompts as below if required)

- c) Expanding role of the community pharmacy is the shift towards patient care outcome focussed services and being paid for those roles (e.g., diabetes educator, sleep apnoea consultant, vaccination services). This is a shift away from dispensing prescriptions being the dominant income source for community pharmacists.
- d) What are your opinions on the role of the business management skills of community pharmacists in the shift towards expanded professional services?

Research question 4:

I have now covered most of the information I was hoping to discuss with you. Can think of anything else you would like to add, or do you have a question for me?

Final question: Demographics table.

This is the final part of the interview. I have a few quick questions to ask you about to gather information surrounding your background if that is okay with you?

Researcher	Participant
Gender? (M / F / Other, does not identify)	
Pharmacist qualifications? (B.Pharm/Honours/MPharm/PharmD/MBA/Other)	
Location of pharmacy (Postcode - urban/rural/remote?)	
How many years have you worked as a community pharmacist?	

Is the community pharmacy you work at a part of a banner group, independent, other?	
What best describes the business model of your pharmacy (discount, forward dispensing, professional service based, dispensary focussed, front of store prioritised)? Other	
Primary role you undertake in community pharmacy (owner, manager, pharmacist in charge, dispensing pharmacist) other?	

Conclusion of the interview:

- a) I am extremely appreciative that you were interested in this research and agreed to participate. The information you provided will help community pharmacists better understand the role of business management and shape the student education curriculum. I really appreciate the time taken out of your schedule to help and thank you for participating in the research.
- b) Potential for snowball recruiting if necessary...This information is extremely valuable and if you know anybody else interested in participating in an interview, please pass on my email.

Appendix M:

Table M1: Creation of unique population codes for community pharmacist.

State	Position	Location	Gender	Business model	Unique population code	I.D. code
QLD	Multi-store owner manager	Urban	M	Banner group/ Corporate	1-QLD,MOM,U,M,B	1
QLD	Multi-store owner manager	Rural and remote	M	Banner group/ Corporate	2-QLD,MOM,R,M,B	2
QLD	Pharmacist in charge	Rural and remote	F	Independent	3-QLD,PIC,R,F,I	3
QLD	Locum	Rural and remote	M	Independent	4-QLD,L,U,M,I	4
QLD	Pharmacist manager	Urban	M	Banner group/ Corporate	5-QLD,PM,U,M,B	5
QLD	Locum	Rural and remote	F	Independent	6-QLD,L,R,F,I	6
TAS	Pharmacist manager	Rural and remote	F	Independent	1-TAS,PM,R,F,I	1
TAS	Owner manager	Rural and remote	M	Independent	2-TAS,OM,R,M,I	2
TAS	Pharmacist manager	Urban	M	Banner group/ Corporate	3-TAS,PM,U,M,B	3
TAS	Multi-store manager	Urban	M	Banner group/ Corporate	4-TAS,MOM,U,M,B	4
TAS	Locum	Rural and remote	M	Independent	5-TAS,L,R,M,I	5
TAS	Owner manager	Urban	M	Independent	6-TAS,OM,U,M,I	6

Appendix N:

Table N1: Summary of the assignment of all identified described business management skills and aptitudes categorised into Davey's business management framework¹⁷.

Business management skill or aptitude	Community pharmacist position			Business model			Location		Skills / aptitudes used across all populations
	Locum (n=3)	Manager (n= 4)	Owner manager (n= 2)	Multi-store owner / manager (n= 3)	Independent (n= 7)	Banner group / corporate (n= 5)	Urban (n= 5)	Rural and remote (n= 7)	
Conceptual									
General business management	2 (4-QLD), (6-QLD).	3 (5-QLD), (1-TAS), (3-TAS).	2 (2-TAS), (6-TAS).	3 (1-QLD), (2-QLD), (4-TAS).	5 (4-QLD), (6-QLD), (1-TAS), (2-TAS), (6-TAS).	5 (1-QLD), (2-QLD), (5-QLD), (3-TAS), (4-TAS).	5 (1-QLD), (5-QLD), (3-TAS), (4-TAS), (6-TAS).	5 (2-QLD), (4-QLD), (6-QLD), (1-TAS), (2-TAS).	Yes
Problem solving	2 (6-QLD), (5-TAS).	0	1 (2-TAS).	3 (1-QLD), (2-QLD), (4-TAS).	3 (6-QLD), (2-TAS), (5-TAS).	3 (1-QLD), (2-QLD), (4-TAS).	2 (1-QLD), (4-TAS).	4 (2-QLD), (6-QLD), (2-TAS), (5-TAS).	No
Pharmacy operations	3 (4-QLD), (6-QLD), (5-TAS).	2 (3-QLD), (3-TAS).	2 (2-TAS), (6-TAS).	2 (1-QLD), (4-TAS).	6 (4-QLD), (6-QLD), (1-TAS), (2-TAS), (5-TAS), (6-TAS).	3 (1-QLD), (5-QLD), (4-TAS).	4 (1-QLD), (5-QLD), (4-TAS), (6-TAS).	5 (4-QLD), (6-QLD), (1-TAS), (2-TAS), (5-TAS).	Yes
Organizational skills	2 (6-QLD), (5-TAS).	0	1 (6-TAS).	2 (1-QLD), (4-TAS).	3 (6-QLD), (5-TAS), (6-TAS).	2 (1-QLD), (4-TAS).	3 (1-QLD), (4-TAS), (6-TAS).	2 (6-QLD), (5-TAS).	No
Innovation	1 (5-TAS).	0	0	0	1 (5-TAS).	0	0	1 (5-TAS).	No
Business planning	2 (4-QLD), (6-QLD), (5-TAS).	0	2 (2-TAS), (6-TAS).	2 (2-QLD), (4-TAS).	5 (3-QLD), (4-QLD), (6-QLD), (1-TAS), (2-TAS), (5-TAS), (6-TAS).	2 (2-QLD), (4-TAS).	2 (4-TAS), (6-TAS).	5 (2-QLD), (4-QLD), (1-TAS), (2-TAS), (5-TAS).	No
Inventory management	1 (6-QLD).	4 (3-QLD), (5-QLD), (1-TAS), (3-TAS).	1 (2-TAS).	2 (2-QLD), (4-TAS).	4 (3-QLD), (6-QLD), (1-TAS), (2-TAS).	4 (2-QLD), (5-QLD), (3-TAS), (4-TAS).	3 (5-QLD), (3-TAS), (4-TAS).	5 (2-QLD), (3-QLD), (6-QLD), (1-TAS), (2-TAS).	Yes
Networking and relationships	2 (6-QLD), (5-TAS).	0	1 (2-TAS).	2 (1-QLD), (4-TAS).	3 (6-QLD), (2-TAS), (5-TAS).	2 (1-QLD), (4-TAS).	2 (1-QLD), (4-TAS).	3 (6-QLD), (2-TAS), (5-TAS).	No
Retail operations	0	1 (1-TAS).	2 (2-TAS), (6-TAS).	2 (1-QLD), (4-TAS).	3 (1-TAS), (2-TAS), (6-TAS).	2 (1-QLD), (4-TAS).	3 (1-QLD), (4-TAS), (6-TAS).	2 (1-TAS), (2-TAS).	No

Larger perspective	3 (4-QLD), (6-QLD), (5-TAS).	0	1 (2-TAS).	0	4 (4-QLD), (6-QLD), (2-TAS), (5-TAS).	0	0	4 (4-QLD), (6-QLD), (2-TAS), (5-TAS).	No
Entrepreneur	0	0	0	0	0	0	0	0	No
Human									
Communication	3 (4-QLD), (6-QLD), (5-TAS).	4 (3-QLD), (5-QLD), (1-TAS), (3-TAS).	0	3 (1-QLD), (2-QLD), (4-TAS).	5 (3-QLD), (4-QLD), (6-QLD), (1-TAS), (5-TAS).	5 (1-QLD), (2-QLD), (5-QLD), (3-TAS), (4-TAS).	4 (1-QLD), (5-QLD), (3-TAS), (4-TAS).	6 (2-QLD), (3-QLD), (4-QLD), (6-QLD), (1-TAS), (5-TAS).	No
Professionalism	3 (4-QLD), (6-QLD), (5-TAS).	1 (1-TAS).	0	0	4 (4-QLD), (6-QLD), (1-TAS), (5-TAS).	0	0	4 (4-QLD), (6-QLD), (1-TAS), (5-TAS).	No
Leadership	2 (6-QLD), (5-TAS).	3 (3-QLD), (5-QLD), (1-TAS).	0	2 (1-QLD), (2-QLD).	0 (3-QLD), (4-QLD), (6-QLD), (1-TAS), (2-TAS), (5-TAS), (6-TAS).	3 (1-QLD), (2-QLD), (5-QLD).	2 (1-QLD), (5-QLD).	5 (2-QLD), (3-QLD), (6-QLD), (1-TAS), (5-TAS).	No
Teamwork	2 (6-QLD), (5-TAS).	2 (1-TAS), (3-TAS).	0	3 (1-QLD), (2-QLD), (4-TAS).	3 (6-QLD), (1-TAS), (5-TAS).	4 (1-QLD), (2-QLD), (5-QLD), (3-TAS).	3 (1-QLD), (3-TAS), (4-TAS).	4 (2-QLD), (6-QLD), (1-TAS), (5-TAS).	No
Customer care	3 (4-QLD), (6-QLD), (5-TAS).	2 (3-QLD), (1-TAS).	2 (2-TAS), (6-TAS).	1 (4-TAS).	6 (3-QLD), (4-QLD), (6-QLD), (1-TAS), (2-TAS), (5-TAS), (6-TAS).	1 (4-TAS).	2 (4-TAS), (6-TAS).	6 (3-QLD), (4-QLD), (6-QLD), (1-TAS), (2-TAS), (5-TAS).	Yes
Self-awareness	2 (4-QLD), (6-QLD).	3 (3-QLD), (1-TAS), (3-TAS).	2 (2-TAS), (6-TAS).	2 (1-QLD), (4-TAS).	6 (3-QLD), (4-QLD), (6-QLD), (1-TAS), (2-TAS), (6-TAS).	3 (1-QLD), (3-TAS), (4-TAS).	4 (1-QLD), (3-TAS), (4-TAS), (6-TAS).	5 (3-QLD), (4-QLD), (6-QLD), (1-TAS), (2-TAS).	Yes
Personnel management	2 (4-QLD), (6-QLD).	3 (5-QLD), (1-TAS), (3-TAS).	2 (2-TAS), (6-TAS).	3 (1-QLD), (2-QLD), (4-TAS).	5 (4-QLD), (6-QLD), (1-TAS), (2-TAS), (6-TAS).	5 (1-QLD), (2-QLD), (5-QLD), (3-TAS), (4-TAS).	5 (1-QLD), (5-QLD), (3-TAS), (4-TAS), (6-TAS).	5 (2-QLD), (4-QLD), (6-QLD), (1-TAS), (2-TAS).	Yes
Dedication	2 (6-QLD), (5-TAS).	0	2 (2-TAS), (6-TAS).	0	4 (6-QLD), (2-TAS), (5-TAS), (6-TAS).	0	1 (6-TAS).	3 (6-QLD), (2-TAS), (5-TAS).	No
Independent	2 (6-QLD), (5-TAS).	2 (5-QLD), (1-TAS).	1 (2-TAS).	0	0 (3-QLD), (4-QLD), (6-QLD), (1-TAS), (2-TAS), (5-TAS), (6-TAS).	1 (5-QLD).	1 (5-QLD).	4 (6-QLD), (1-TAS), (2-TAS), (5-TAS).	No
Being ethical	3 (4-QLD), (6-QLD), (5-TAS).	1 (1-TAS).	0	0	4 (4-QLD), (6-QLD), (1-TAS), (5-TAS).	0	0	4 (4-QLD), (6-QLD), (1-TAS), (5-TAS).	No
Being proactive	2 (6-QLD), (5-TAS).	1 (3-TAS).	2	1 (1-QLD).	4 (6-QLD), (2-TAS), (5-TAS), (6-TAS).	2 (1-QLD), (3-TAS).	3	3 (6-QLD), (2-TAS), (5-TAS).	Yes

							(1-QLD), (3-TAS), (6-TAS).		
Adaptable	2 (4-QLD), (6-QLD).	2 (1-TAS), (3-TAS).	0	2 (1-QLD), (4-TAS).	3 (4-QLD), (6-QLD), (1-TAS).	3 (1-QLD), (3-TAS), (4-TAS).	3 (1-QLD), (3-TAS), (4-TAS).	3 (4-QLD), (6-QLD), (1-TAS).	No
Empathy	0	1 (1-TAS).	1 (2-TAS).	1 (1-QLD).	2 (4-QLD), (6-QLD).	1 (1-QLD).	1 (1-QLD).	2 (1-TAS), (2-TAS).	No
Time management	2 (4-QLD), (6-QLD), (5-TAS).	0	0	3 (1-QLD), (2-QLD), (4-TAS).	2 (4-QLD), (6-QLD).	3 (1-QLD), (2-QLD), (4-TAS).	2 (1-QLD), (4-TAS).	3 (2-QLD), (4-QLD), (6-QLD).	No
Ambition, risk taking	1 (5-TAS).	1 (3-TAS).	1 (6-TAS).	0	0 (3-QLD), (4-QLD), (6-QLD), (1-TAS), (2-TAS), (5-TAS), (6-TAS).	1 (3-TAS).	2 (3-TAS), (6-TAS).	1 (5-TAS).	No
Conflict resolution	1 (4-QLD).	3 (5-QLD), (1-TAS), (3-TAS).	0	2 (1-QLD), (2-QLD).	2 (4-QLD), (1-TAS).	4 (1-QLD), (2-QLD), (5-QLD), (3-TAS).	3 (1-QLD), (5-QLD), (3-TAS).	3 (2-QLD), (4-QLD), (1-TAS).	No
Resilient	1 (6-QLD).	0	0	2 (1-QLD), (2-QLD).	1 (6-QLD).	2 (1-QLD), (2-QLD).	1 (1-QLD).	2 (2-QLD), (6-QLD).	No
Confidence	1 (6-QLD).	1 (1-TAS).	1 (2-TAS).	2 (1-QLD), (4-TAS).	3 (6-QLD), (1-TAS), (2-TAS).	2 (1-QLD), (4-TAS).	2 (1-QLD), (4-TAS).	3 (6-QLD), (1-TAS), (2-TAS).	Yes
Affinity to role repetitiveness	0	0	0	1 (4-TAS).	0	1 (4-TAS).	1 (4-TAS).	0	No
Technical									
Professional development	2 (6-QLD), (5-TAS).	1 (1-TAS).	2 (2-TAS), (6-TAS).	2 (1-QLD), (4-TAS).	5 (6-QLD), (1-TAS), (2-TAS), (5-TAS), (6-TAS).	2 (1-QLD), (4-TAS).	3 (1-QLD), (4-TAS), (6-TAS).	4 (6-QLD), (1-TAS), (2-TAS), (5-TAS).	Yes
Financial analysis	3 (4-QLD), (6-QLD), (5-TAS).	2 (5-QLD), (3-TAS).	2 (2-TAS), (6-TAS).	2 (2-QLD), (4-TAS).	5 (4-QLD), (6-QLD), (2-TAS), (5-TAS), (6-TAS).	4 (2-QLD), (5-QLD), (3-TAS), (4-TAS).	4 (5-QLD), (3-TAS), (4-TAS), (6-TAS).	5 (2-QLD), (4-QLD), (6-QLD), (2-TAS), (5-TAS).	Yes
Marketing and promotion	0	0	1 (2-TAS).	0	1 (2-TAS).	0	0	1 (2-TAS).	No
Business acumen	2 (4-QLD), (5-TAS).	1 (3-TAS).	2 (2-TAS), (6-TAS).	1 (4-TAS).	4 (4-QLD), (2-TAS), (5-TAS), (6-TAS).	2 (3-TAS), (4-TAS).	3 (3-TAS), (4-TAS), (6-TAS).	3 (4-QLD), (2-TAS), (5-TAS).	Yes
Pharmacy law	2 (4-QLD), (6-QLD).	2 (5-QLD).	0	1 (1-QLD).	2 (4-QLD), (6-QLD).	2 (1-QLD), (5-QLD).	2 (1-QLD), (5-QLD).	2 (4-QLD), (6-QLD).	No
Technology	2 (6-QLD), (5-TAS).	0	0	0	2 (6-QLD), (5-TAS).	0	0	2 (6-QLD), (5-TAS).	No

Business model	2	3	2	1	6	2	3	5	Yes
diversity	(4-QLD), (5-TAS).	(3-QLD), (5-QLD), (1-TAS).	(2-TAS), (6-TAS).	(4-TAS).	(3-QLD), (4-QLD), (1-TAS), (2-TAS), (5-TAS), (6-TAS).	(5-QLD), (4-TAS).	(5-QLD), (4-TAS), (6-TAS).	(3-QLD), (4-QLD), (1-TAS), (2-TAS), (5-TAS).	
Prior experience	2	1	1	1	3	2	2	3	Yes
	(6-QLD), (5-TAS).	(5-QLD).	(2-TAS).	(1-QLD).	(6-QLD), (2-TAS), (5-TAS).	(1-QLD), (5-QLD).	(1-QLD), (5-QLD).	(6-QLD), (2-TAS), (5-TAS).	
