Design and Evaluation of a Novel Professional Identity Development Program for Pharmacy Students.

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Education is not the filling of a pail, but rather the lighting of a fire.

(William Butler Yeats)

Abstract

Introduction

Professionalism, which is integral to the practice of pharmacy, is evolving to include a recognition of the importance of the development of professional identity. What is lacking, however is the presence of a framework for understanding the formation of student professional identity and the selection of suitable pedagogical approaches to facilitate such development. Educators are under increasing pressure to produce work-ready graduates, which involves the development of student professionalism. Current competency-based approaches focus on promoting student professional attitudes, values and behaviours. While these competencies are important to professional practice, they fail to adequately capture the complexity and richness of the professional role. A greater understanding of the mechanism of identity development, paired with pedagogies, which support identity formation, would better enable educators to adequately prepare students for professional practice. Professional identity is formed on two levels; the individual or psychological level and the collective level, also known as socialisation. The aim of this study was to develop a Professional Identity Program (PIP), designed to facilitate student professional identity formation, targeting the psychological development of the individual student. This study utilised the theoretical tenets of Self-Determination Theory (SDT), a psychological theory of human motivation and identity development, as a basis for the design of the program. SDT states that satisfaction of the three human basic psychological needs; competence, relatedness and autonomy, results in increased motivation (autonomy) and identity development. The PIP featured autonomy-supportive teaching in a longitudinal, early intervention, theory-based approach to professional development for pharmacy students.

Methods

Design: In line with the central tenets of SDT, the PIP was designed to support student competence, relatedness and autonomy, with a view to enhancing student motivation and eliciting identity development. Recognised pedagogical strategies for providing such support were employed throughout the 2 year program. Early intervention was a feature of this program, providing students with the opportunity to consider professionalism and professional identity development by participating in active discussions with practicing pharmacists and other students, in their first year of study. Emotional intelligence training was included in the program for its link to professional identity development. In addition

approaches previously proven to enhance professional development such as reflective activity, role models and authentic practice-related activity were also incorporated into the program.

Delivery: The PIP was integrated into the existing curricular structure, in each semester for the first two years of the BPharm. Sessions were delivered together with a practicing pharmacist, offering the students an opportunity to interact with the profession, in the absence of workplace exposure. Autonomy-supportive teaching techniques underpinned the delivery of the program, and a variety of teaching styles were employed to promote student participation and engagement.

Evaluation: A previously validated professional identity measure, the McLeod Clarke Professional Identity Scale (MCPIS-9), was utilised as part of a mixed methods approach to the evaluation of the PIP. The Pharm-S, an instrument for measuring student motivation was adapted from an existing scale, modifying the context for pharmacy education. The Pharm-S was validated using recognised techniques and incorporated, alongside the MCPIS-9 and demographic questions to form the student survey. Students in two separate first year cohorts (2014 and 2015 intake) were surveyed at 0, 12 and 24 months. The 2014 cohort did not receive the PIP, whereas the 2015 cohort had the PIP integrated into their curriculum. The student survey scores were summarised as averages in the case of the MCPIS items, and a weighted scoring protocol, the Relative Autonomy Index (RAI) was used for the Pharm-S. To effectively explore inter and intra group differences, inferential statistical techniques, using non-parametric analysis, was undertaken.

An additional survey, using likert-response, was also administered to the 2015 students for the purposes of evaluating the content and delivery of the PIP. Data from this survey were analysed using basic descriptive statistical techniques.

Focus groups of first and fourth year students were also conducted to gain a more in-depth understanding of the student experience of professional development. Responses from the focus groups were audio recorded and transcribed. The written transcriptions were then analysed using an analytical framework identifying key concepts, which were subsequently organised into themes.

Results

The Pharm-S instrument proved to be suitable for use after successfully conducting face, content, test-retest, construct and convergent validation techniques. A positive correlation (r=0.64) between motivation scores and professional identity scores was also revealed.

Analysis of the systematic monitoring of student motivation during the PIP, using the Pharm-S, showed a statistically significant increase in their motivation (autonomy) after 2 years participation in the program (U=421, Z=-2.5, p=0.012). Comparing student scores from those who received the PIP with student scores who did not receive the PIP, also revealed a statistically significant increase in motivation (autonomy) scores after two years in the program (Z=-2.3, p=0.020). Autonomy-supportive teaching has previously been reported to increase student autonomy through its student-centred focus[1] and by increasing motivation to learn.[2,3] Observed increases in motivation (autonomy) and a demonstrated link between Pharm-S and MCPIS-9 scores, provided evidence of professional identity formation when support is provided for student competence, relatedness and autonomy. This reflects the theoretical basis of SDT which states that the satisfaction of the three human basic psychological needs, lays a necessary foundation for identity development.[4]

The PIP was positively received by students with 100% stating that they gained a greater understanding of the importance of professionalism and 84% reporting that it improved their sense of professional identity (n=44, 88% response rate, M=18, F=26), mean age=20 yrs, SD=4.2). Student (first and fourth year) perceptions of their professional development revealed three major influencing factors; pharmacist-educators, curriculum and placement. Differences however were noted between groups, however, with the first years prioritising pharmacist educators and the fourth years, placement.

Conclusion

This study builds on and contributes to work in professional education by demonstrating the impact of an early intervention, theory-based, professional identity program. It is the first of its kind to apply the tenets of a psychological theory on motivation and to feature pedagogies that facilitate motivation and identity development in pharmacy students. Adopting autonomy-supportive teaching, a student-centred approach, increases their motivation and autonomy, this being linked with more effective patient-centred care and better patient health outcomes.

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Mylrea MF, Sen Gupta T, Glass BD. *Professionalisation in Pharmacy Education as a Matter of Identity*. Am J Pharm Educ. 2015;79(9):142.

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Mylrea MF, Sen Gupta T, Glass BD. *Validation of a motivation survey tool for pharmacy students: exploring a link to professional identity development*. Currents in Pharmacy Teaching and Learning. 2017 9(5), p 763-769.

Mylrea MF, Sen Gupta T, Glass BD. *Design and Evaluation of a Novel Professional Identity Development Program for Pharmacy Students*. Am J Pharm Educ. 2018; Published online 8th March 2018

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Conferences and presentations

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Abbreviations

AACPC	American Association of Colleges of Pharmacy Commission
AACP-COD	American Association of Colleges of Pharmacy, Council of Deans
ACCP	American College of Clinical Pharmacy
ACPE	Acreditation Council for Pharmacy Education
AHPRA	Australian Health Professionals Regulatory Agency
AIBM	American Board of Internal Medicine
APhA-ASP	American Pharmaceutical Association,
ASP	Academy of Students of Pharmacy
AST	Autonomy supportive teaching
BPharm	Bachelor of Pharmacy
BREQ	Behavioral Regulation in Exercise Questionnairie
EFA	Exploratory factor analysis
EI	Emotional Intelligence
FIP	International Pharmaceutical Federation
HREC	Human Research Ethics Committee
JCU	James Cook University
KMO	Kaiser-Meyer-Olkin
MCPIS-9	McCleod Clark Professional Identity Scale
PAT	Professional Asssessment Tool
PharmD	Doctor of Pharmacy
Pharm-S	Pharmacy Motivation Scale
PIF	Professional Identity Formation
PIP	Professional Identity Program
PPTK	Pharmacy Professionalism Tool Kit
RAI	Relative Autonomy Index
SDT	Self-Determination theory
SMS-II	Sports Motivation Scale
SPSS	Statistical Package for the Social Sciences Software

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1 CHAPTER 1 INTRODUCTION

1.1 Background

Preparation for professional practice involves the acquisition of essential knowledge and skills, as well as the development of professional identity, including inherent dispositions that define the profession and its members.[1] The role of the professional program is to support both the epistemological and ontological development of the student, thus facilitating a successful transition to practicing professional.[2] In response to growing concerns around the preparation of professional graduates for an increasingly complex healthcare landscape, an independent commission for the education of health professionals was formed in 2010.[3] The commission was formed by twenty individuals from across the globe, representing both health professionals and academic leaders. Among the recommendations reported by the commission, was the call for students to develop 'responsible professionalism', not only through the acquisition of knowledge and skills, but in the development of fundamental professional behaviours, identity and values.

1.2 Professionalism

Professionalism is central to the practice of pharmacy, particularly for the establishment and maintenance of patient fiduciary relationships. Aguilar et al[4] explain the impact of professionalism on patient care and subsequent health outcomes, highlighting its role in establishing a relationship of trust.[4] Upholding professional standards is thus key to the current and future status of the pharmacy profession.[5] Professionalism is a complex construct, influenced by many factors, as identified by Hammer.[6] As such, arriving at an agreed definition has been problematic, with consensus difficult to achieve.[7] The professionalism task force, an initiative between the American Pharmaceutical Association Academy of Students of Pharmacy (APhA-ASP) and the American Association of Colleges of Pharmacy Council of Deans (AACP-COD), was formed in 1995, with an aim to standardise professional education. One of their tasks was to define pharmacy professionalism. The task force arrived at ten character traits required of the pharmacist. These included knowledge and skills, service orientation, desire for self-improvement, pride in the profession, ethically sound decision making and leadership qualities.

Most recently professionalism has been described from the perspective of three conceptual frameworks, the combination of which forms a summary of the evolution of professional education; virtue-based professionalism, behavior-based professionalism and professional

identity formation.[8] The latter is a recent conceptual shift in the thinking around professional education in medicine and pharmacy. Irby and Hamstra[8] state that no one single framework is sufficient to adequately describe professionalism, that a combination of the three frameworks is required.

Adding to the complexity of the nature of professionalism, is an observed decline in professional behaviour in society in general, with evidence of fraud and professional misconduct across a range of professions.[4,9] In 2010, in an effort to maintain professional standards in health education, the Australian Health Practitioner Regulation Agency (AHPRA)[10] introduced mandatory reporting of undergraduate pharmacy student conduct. This has brought the issue of student professionalism sharply into focus, with the responsibility to develop student professionalism increasingly falling to university educators.[11]

1.2.1 Pharmacy education

As this study will examine research in pharmacy education from Australia, UK and the US it is useful to briefly discuss the formal educational processes in place in each location. In Australia there are two main pathways to achieve registration as a pharmacist. The most common is the completion of a Bachelor of Pharmacy (BPharm), as offered by James Cook University (JCU). This is a four-year undergraduate course, which alongside an additional internship year, allows the student to register as a pharmacist in Australia. Post-graduate courses are also offered such as the Master of Pharmacy (MPharm), a two year, graduate-entry course work program.

In the UK the recognised registrable qualification is the MPharm, a four year degree pathway, which includes an internship year. Students participate in 1 week of experiential learning per academic year, for the final three years.[10] In the US students must complete a PharmD, which has a pre-requisite of two years of pre-professional coursework. The PharmD involves four years of study which includes a high level of exposure to experiential learning in the form of introductory and advanced professional experiences in community and hospital pharmacy settings.[11]

The US PharmD programs commence their professional experiential learning in the first year of study, as the foundation science component has been completed during the pre-professional course work. Students will spend a minimum of 1740 hours in experiential learning settings across the four year degree.[11] In contrast, as the BPharm is a standalone

undergraduate qualification, the first two years of study places a large emphasis on science-based subjects, leaving the majority of the experiential component to the last two years of the course. As a result students spend, on average, 500 hours in experiential placement settings, less than a third of the time a PharmD student would undertake. After graduation from the BPharm students then proceed to undertake a 40 week internship, after which they can register to practice.

The majority of the students who enrol in the BPharm at JCU are school leavers with a small proportion of mature-aged students who have spent some time in the workforce or studying in other areas. James Cook University is a regional university, therefore typical class sizes range from forty to fifty students, significantly lower than its metropolitan counterparts. The course has adopted an integrated structure, such that therapeutic information is delivered alongside the major body systems, giving students the opportunity to make essential links between the basic sciences and the practice of pharmacy. The majority of the course is delivered face-to-face in lectures, tutorials and workshop formats. Learning technologies such as Blackboard is used extensively to support student learning.

1.2.2 Professional socialisation

Socialisation is defined as 'the process by which a person learns to function within a particular society or group by internalising its values and norms'.[1] This concept was extended to professional socialisation, and used in medical education to describe the process of becoming a physician.[6] Hammer describes it as an active process which involves 'the transformation of individuals from students to professionals who understand the values, attitudes, and behaviours of the profession deep in their soul'.[6] It is an essential process if students are to make the transition from student to working professional.[1] As early as 1990, the American Association of Colleges of Pharmacy Commission (AACPC) recommended curriculum reform, to include strategies to facilitate the professional socialisation of students. It is the process of professional socialisation that invokes professional identity formation.[1]

1.2.3 Professional education

A white paper on student professionalism was published by the professionalism task force in 2000. It provided recommendations for the teaching and assessment of professionalism and included a Pharmacy Professionalism Toolkit[12] (PPTK) as a resource for schools and colleges. The release of the white paper stimulated much research into professional

education. Hammer[5] explored the factors impacting professionalism of pharmacy students, reporting that strategies such as role models, experiential learning and reflective practice serve to enhance professionalisation.[5,6,13] It was also agreed that professionalism must be taught explicitly,[14] as Hammer explains, 'for professionalism to be considered seriously, it must be taught in the curriculum'.[6]

Historically, the teaching and assessment of professionalism has been aligned with the virtue and behavior-based professionalism frameworks.[5,14], as described by Irby and Hamstra.[8] The research literature reflects a large body of research focused on the teaching and assessment of professionalism based on these characteristics and traits.[1,15-17] Hammer reported on the difficulty around describing and measuring attitudes and behaviours,[5] with more recent research, raising doubt around the validity of attitudes, values and behaviours as reliable indicators of student professionalism.[4]

1.3 Professional identity formation

Medical education research has recently led a significant shift in thinking around professional education. The third framework of professionalism, professional identity formation (PIF), is a recent introduction of an additional dimension in the area of professional education.[1,18] Cruess et al, after decades of research around professional attitudes, values and behaviours, have stated that a main objective of professional education should be the development of professional identity.[1,19] As Irby explains, the new emphasis on PIF, was prompted by the constraints of previous professional education paradigms,[20] citing the 'perceived reductionistic and prescriptive behavioural approach to competencies and milestones'.[8] Cruess et al argue that the demonstration of appropriate attitudes, values and behaviours remains important, but that professional education needs to make explicit the role of professional identity formation (PIF).[1]

PIF is described in medical education, as a complex process involving a combination of professionalism, psychosocial identity development and formation.[21] Jarvis-Selinger et al[22] explain the dual aspect of identity formation in their description of PIF as 'an adaptive, developmental process that happens simultaneously at two levels; at the individual level (psychological development) and at the collective level (socialisation)'.[22] Several theories have been applied to professional identity formation in the professions. Lave and Wenger's situated learning (communities of practice) is particularly relevant as it describes identity formation as a result of authentic participation in relevant communities of practice.[23]

1.3.1 Developing professional identity

In a review of professional identity development in higher education by Trede et al it was reported that there is a lack of research around the conceptualisation of professional identity.[11] Holden also observes that 'there is no unified theoretical framework for understanding the process of PIF',[24] thus hindering research into appropriate and effective pedagogical approaches for developing professional identity.[1,11] What has been recognised however, is that the development of student professional identity can serve to prepare students for the professional workplace.[25]

Dall'Alba explains that becoming a professional should involve thinking, feeling and acting like a professional and that professional programs should provide opportunites for students to experiment with their future identity.[26] She states that preparing students for their chosen profession should involve more than knowledge and skills, the curriculum should be concerned also with who the student is becoming, otherwise known as ontological development.[2]

While the importance of professional identity development has been made clear, there is an absence of research into strategies which will facilitate such development in undergraduate pharmacy students.[11] Trede et al[11] explain that it is necessary to identify possible theoretical frameworks that will support the development of student professional identity. As such, this study will investigate the application of self-determination theory[27-29] (SDT), a psychological theory of human motivation and identity formation, as a framework for PIF. This highly regarded and widely applied theory has been cited in medical education as a mechanism for improving student motivation but has not been considered for identity development in the health professions. SDT holds that an individual who is supported in their competency relatedness and autonomy will become more self-determined (autonomous), this triggering a process of internalisation or an integration into one's sense of self.[27,29,30]

1.4 Study aims and objectives

The aim of this research project was to design and evaluate a professional identity program (PIP) for first year Bachelor of Pharmacy (BPharm) students, based on the theoretical tenets of Self-Determination Theory (SDT). The evaluation component sought to test the hypothesis that participation in the PIP would increase student professional identity.

In order to achieve these aims the following objectives were defined:

OBJECTIVE	CHAPTER
1) Conduct a literature review to determine the status of professional education in Australia and overseas.	2
2) Explore the rationale for the use of Self-determination theory as a basis for professional identity development.	**3**
3) Design a Professional Identity Program (PIP), based on SDT for students in the first and second year of the BPharm. a) Develop workshops to include pedagogies incorporating the tenets of SDT. b) Build autonomy-supportive teaching into the program	**4**
4) Develop and validate a survey instrument to evaluate student motivation(Pharm-S) a) Adapt the SMS-II, a sports motivation scale based on SDT, to reflect the motivations to study pharmacy b) Validate the adapted survey (Pharm-S), using recognised validation procedures. c) Use statistical techniques to explore the possibility of a correlation between motivation and professional identity formation in pharmacy students.	**5**
5) Survey students at t=0, 12 and 24 months using: a) MCPIS-9, as a previously validated Professional Identity scale. b) The validated Pharm-S instrument c) Demographic items d) Analyse motivation and professional identity data collected over a period of 2 years.	**6**

6) Determine the factors involved in professional development from the student perspective. a) Conduct focus groups involving commencing and graduating students.	**7**
7) Explore student perceptions of the white coat ceremony a) Conduct a survey of students at all levels of the BPharm b) Analyse survey data	**8**
8) Determine preceptor expectations and experiences of student professionalism a) Conduct preceptor interviews b) Transcribe and analyse interview data	**9**

1.5 Chapter summary

A literature review provided the background to professional education in higher education, and a starting point for this study. This review can be found in Chapter 2 of this thesis and was published in the *American Journal of Pharmaceutical Education.*[18] [Mylrea MF, Gupta TS, Glass BD. *Professionalisation in Pharmacy Education as a Matter of Identity*. Am J Pharm Educ. 2015;79(9):142.]

The next phase of the study involved an investigation into possible appropriate theoretical frameworks for the development of professional identity. Chapter 3 is a proposal for the application of SDT as a theoretical framework for teaching and learning strategies in professional education, specifically the development of professional identity. This was published as an article in *Pharmacy*.[31] [Mylrea M, Sen Gupta T, Glass B. *Developing Professional Identity in Undergraduate Pharmacy Students: A Role for Self-Determination Theory*. Pharmacy. 2017;5(2):16.]

The PIP was developed using the basic tenets of SDT, specifically providing support for student competence, relatedness and autonomy. Strategies were put in place to directly address each of the basic psychological needs, featuring autonomy-supportive teaching featuring throughout. Development of the program content, design, lesson plans, sequencing on a semester by semester basis, over the duration of two years, the details of which can be found in Chapter 4.

To evaluate the impact of the planned professional identity program, it was necessary to develop and instrument which would detect and quantify the motivation regulators specified by SDT. An existing survey instrument based on SDT, utilised in the context of sporting athletes (SMS-II), was adapted for use in the pharmacy context. The validation of this instrument can be found in Chapter 5 as an article published in *Currents in Pharmacy Teaching and Learning.*[32] [Mylrea MF, Sen Gupta T, Glass BD. *Validation of a motivation survey tool for pharmacy students: exploring a link to professional identity development.* Currents in Pharmacy Teaching and Learning. 2017;http://dx.doi.org/10.1016/j.cptl.2017.05.014.] . For comparison purposes, an existing validated instrument for measuring professional identity (MCPIS[33]) was also included in the final survey instrument.

The students were surveyed at regular intervals and the results of this part of the study were published as a paper[34] in the *American Journal of Pharmaceutical Education* which can be found in Chapter 6. [Mylrea MF, Gupta TS, Glass BD. *Design and Evaluation of a Novel Professional Identity Development Program for Pharmacy Students*. Am J Pharm Educ. 2018;1(1):1.]

Additional perspectives, considered relevant to the study were gathered via organised focus groups. In particular, attitudes towards and experiences of professional education were explored in focus groups involving first and fourth year students, the results of which can be found in Chapter 7 and published as a paper in the journal Pharmacy Education [Mylrea MF, Sen Gupta T, Glass BD. *Commencing and graduating pharmacy students' perceptions of their professional development during undergraduate study.* Pharm Educ Accepted for publication June 2018]

As stakeholders of pharmacy student professionalism, preceptors were also interviewed regarding their expectations and experiences of student professionalism, details of which included in Chapter 9.

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2 CHAPTER 2 LITERATURE REVIEW

This chapter is the first publication from this study and is published in the *American Journal of Pharmacy Education*. It is a review of the current state of the literature regarding professional education for the health disciplines and for pharmacy in particular. The paper also examines the emergence of the role of professional identity development for adequate preparation for the workplace.

Mylrea MF, Gupta TS, Glass BD. Professionalisation in Pharmacy Education as a Matter of Identity. American Journal of Pharmaceutical Education. 2015;79(9):142.

Authors' contributions

Martina Mylrea conducted the literature search and prepared the manuscript. Beverley D Glass critically reviewed and edited the manuscript prior to submission. Tarun Sen Gupta provided tertiary health education expertise.

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2.1 Abstract

A call has been made for a new generation of health care professionals, who are adequately equipped to cope with the demands of current and future health care challenges. Specifically referring to the professionalisation of students, the development of professional identity is highlighted. There is very little research activity around the formation of professional identity in higher education health programs. Such programs commonly approach the teaching, learning and assessment of professionalism based upon a suite of attitudes, values and behaviors, which are considered indicative of a practicing professional. Some regard such an approach as detrimental to student professional development. Alternative views consider professional development from an ontological perspective, with a focus on an extended period of transition as one gains experience through exposure to the practice and its practitioners. During this transition professional identity formation is essential and can best be achieved through student engagement with authentic experiences and interaction with qualified professionals. This paper examines the shift toward identity formation as an essential element of professional education and considers the implications for pharmacy curriculum design.

2.2 Introduction

In 2010 a Global Independent Commission into the Education of Health Professionals for the 21st Century called for a third generation of educational reforms to better prepare graduates working in health fields.[1] The commission identified inequitable distribution of healthcare expertise, threats to health security and increased demands on health workers as some of the challenges facing those working in healthcare. They point out that graduates are currently poorly prepared for these challenges in the present global health context. The call for new reforms followed 2 previous calls, both aiming to transform health education. The first, inspired by the 1910 Flexner report, recommended that science knowledge form the basis of health education in a period that saw a dramatic reduction in mortality rates.[1] The second call was characterised by the introduction of problem-based learning into medical curricula. An independent commission consisting of 20 academic and professional leaders from around the world concluded that health education programs were not preparing graduates to respond to current demands of the health system and a curriculum redesign for health education was urgently needed. In particular they stated:

> 'Professional education … must inculcate responsible professionalism, not only through explicit knowledge and skills, but also by promotion of an identity and adoption of the values, commitments, and disposition of the profession.'[1]

Moreover, in 2014, the International Pharmaceutical Federation (FIP) alerted both practitioners and those in pharmacy education to challenging times ahead as the practice of pharmacy continues to become more complex and demanding.[2]

Approaches to professional education primarily focus on competence-based models, where the student is required to demonstrate attitudes, beliefs and values pertinent to a particular profession.[3,4] Recent research demonstrates that while creating a culture of professionalism and being explicit about professional expectations is important[5], more focus needs to be placed on the development of student professional identity.[6] Course designers need to look at ways to achieve professional socialisation of the student, where focus is placed on who the student is becoming.[7] It is this identity formation which will prepare them most effectively for the challenges which lie ahead.[7] Many researchers agree that exposure to the profession through access to role models and experiential learning serves to effectively acculturate the

aspiring professional.[5,8,9] This paper examines implications of the decline in professionalism for health education programs and highlights the challenge in defining professionalism among professional agencies. This paper also describes current approaches to professional education, with increasing attention being directed towards the development of a professional identity as a mechanism for professionalisation.

2.3 Method

In conducting this review several databases were employed including PubMed, Science Direct, Scopus and CINAHL. In addition ERIC, the educational clearing house was also used to identify articles with an education focus. Search terms used were 'professionalism', 'professional identity', 'professional socialisation' and 'pharmacy education'. Journal articles published in the English language from the preceding twenty years were included, with conference presentations and non-peer reviewed articles being excluded

2.4 Decline in social values

There are misgivings regarding the decline of professionalism and common civility in society at large.[3,8,10,11] Examples of professional misconduct and occasions of fraud across various disciplines have highlighted the issue of professionalism and the need to address these issues during university education.[12,13] Undergraduate students are also perpetrators of unprofessional behaviours, fueled by the lowering of standards as educational institutions are pressured to placate students who feel entitled to special treatment.[14] The need for instruction in the ways of professional conduct in health education was highlighted over a century ago. Abraham Flexner's full vision for medical education in 1910 included not only technical and cognitive skills, but also core professional values such as compassion, service and altruism.[15] These characteristics lie at the heart of those working in the health professions such as medicine, nursing and pharmacy. Aguilar and her colleagues explain the importance of professionalism in these settings:

> 'Health practitioners' professionalism can impact patient care, health outcomes, therapeutic relationships and the public's perception and trust of a profession and its members.'[3]

Pharmaceutical care, a model focusing on patient wellbeing and optimal outcomes from medication usage, demands a new level of professionalism of its practitioners.[8] Waterfield described pharmacists as having particular moral responsibilities as 'gatekeepers to safe drug usage', a critical element in human health and safety.[16] Since mandatory student

registration and reporting was introduced in 2010 by the Australian Health Practitioner Regulation Agency (AHPRA)[17], the issue of student professionalism becomes more entwined with and reflective of health professional educational programs.

2.5 Defining professionalism

The professionalism movement began more than thirty years ago when Arnold Relman, the editor-in-chief of the *New England Journal of Medicine ex*pressed concern over a rise in business influence on physician practices. In response others called for a return to core professional values, where the interests and well-being of the patient were the central concerns.[18] Knowing which characteristics define the professional is problematic and despite extensive efforts an agreed definition has yet to be achieved.[3,19-23] The main driver towards the development of a definition for professionalism was initially led by the American Board of Internal Medicine (ABIM).[24] In 1995 Project Professionalism was established with a view to achieving definitional specificity and describes in detail the aims and qualities of a professional. Six values were identified – altruism, accountability, excellence, duty, honor, and integrity and respect for others.[25] A subsequent collaboration between the ABIM, the American College of Physicians and the American Society of Internal Medicine and the European Federation of Internal Medicine resulted in the publication of the Physician's Charter[26] which is the most widely accepted and acknowledged publication on professionalism.[24] And while medicine served as the benchmark for considerations around professionalism[24], other healthcare areas such as nursing and pharmacy[27] have expressed increased concern about professionalism in their students. Other occupations such as veterinary science and dentistry are beginning to call for consensus on a definition as well.[28,29]

The difficulties in arriving at an agreed suite of general professional attributes extend equally to the pharmacy profession[3,8,21,30] and there still remains a lack of consensus as to what constitutes professionalism in the pharmacy arena.[21,31] Hammer points out that professional traits are essential, but difficult to define and measure.[5] In addition the exact characterisation of the pharmacy professional has been in a state of flux as the practice of pharmacy evolves into the era of pharmaceutical care requiring more interaction with patients, thus placing greater focus on skills and attitudes of a professional.[21,32] A review in sociology by Evetts describes the history of attempts to pin down the nature of professionalism in general and notes that it is not a fixed construct, that has and will continue to change over time.[33]

In its development of 'A Global Framework for Quality Assurance of Pharmacy Education', FIP presented the following definition of professionalism:

> 'Professionalism: The [demonstration of] ethics, attitudes, values, qualities, conduct, and behaviors that characterise a profession and are expected of its practitioners, and that underpin the trust that the public has in the profession'.[2]

One of the earliest responses to the rapidly changing landscape of the pharmacy profession was the collaboration between the American Pharmaceutical Association, Academy of Students of Pharmacy and the American Association of Colleges of Pharmacy, Council of Deans (APhA-ASP/AACP-COD) to form the Task Force on Professionalism. This resulted in the publication of a White Paper on Pharmacy Student Professionalism. This document defined 10 characteristics of a professional and 10 characteristics of a professional pharmacist.[34] This was followed by a toolkit expanding on the ten professional traits identified in the original white paper. Included also in the white paper are three documents which help to define professionalism for the pharmacist and the pharmacy student: The Oath of a Pharmacist, the Code of Ethics for Pharmacists and the Pledge of Professionalism.[34] Hammer et al followed up with a comprehensive review of the issues surrounding student professional development and offered recommendations to university educators for the implementation of professional education within pharmacy programs.[8]

The publication of the White paper in 2000 prompted an increase in the research activity around professionalism.[11] Much of the research was concerned with identifying professional attributes, beliefs and values as indicators of professional development.[5,35] In 2007 the American College of Clinical Pharmacy (ACCP) set out to define an agreed set of attributes of professionalism with the goal of helping students to better understand the nature of professionalism. Using a bicycle wheel, an analogy previously suggested by Hammer[8], professionalism was represented with the fiducial relationship between the pharmacist and the patient at the center of the wheel. Five spokes emerge from the center, each spoke representing a core trait of professionalism. The process involved an extensive literature review in the area of medicine, nursing and pharmacy as well as input from members of the ACCP working committee and an assessment by several professionals. From this patient centered viewpoint came a five-point description of professionalism in pharmacy: care and compassion, responsibility, honesty and integrity, respect for others and commitment to excellence.[36] The spokes of the wheel describe the desired traits of a professional

pharmacist which in turn lead to behaviours on the outer rim of the wheel, such as patient care.[36] The nature of the attitudes, values and behaviours that epitomise professionalism is acknowledged as problematic and the authors attest to the comprehensive list of professional characteristics identified by their research. It was their intent however to develop a manageable framework with which to guide student understanding and development. The most important aspect identified by the authors is a relationship built on trust with corresponding actions and behaviours and without which the profession does not exist.[36]

The Pharmacy Board of Australia released its latest code of conduct in March 2014.[37] It clearly outlines professional values and qualities which must be adopted by the pharmacist. Once again the patient is at the center of all activity which concurs with the view of Holdford[14] who highlights that professionalism can only be achieved when the patient is the central focus. The Australian viewpoint also draws particular attention to the need for cultural awareness, respect for patient diversity and a greater focus on self-awareness and self-reflection.[37] The latest report from the AACP in 2011 revisits the set of ten identified traits published in the White Paper in 2000 and adds flexibility and punctuality as additional elements as well as alertness, initiative, and integrity to create a suite of 11 traits of professionalism as shown in Table 2-1.

Table 2-1 Professionalism Traits as identified by AACP[35]

Knowledge and skills
A commitment to self-improvement and life-long learning.
A service minded orientation
Pride in the profession and a dedication to advance its value to society
Create a covenantal relationship with those served
Alertness, creativity, initiative and innovation
Conscientiousness, integrity and trustworthiness
Flexibility and punctuality
Accountability for his/her performance
Ethically sound decision making and moral behaviour
Leadership

The authors also made 16 recommendations for nurturing professionalism in student pharmacists. Among these are implementation of training for educators, the development of

assessment tools, changes to admission processes to incorporate aspects of professionalism, update of previous resources for educators and the development of leadership training within the curriculum.[35]

2.6 Professionalisation and identity

The process of becoming a professional is called 'professional socialisation' or 'professionalisation' and is an essential component of health education.[38] It involves a transformation of the self over time. Merton describes socialisation as:

> '… the transformation of individuals from students to professionals who understand the values, attitudes and behaviours of the profession deep in their soul. It is an active process that must be nurtured throughout the professional's/student's development.'[39]

In medical education the term 'professional formation' has been adopted to describe professionalisation, indicating a reference to the tradition of educating clergy. Specifically the 475 year old tradition of Jesuit formation is used as an example where core training involves service, experience, attainment of knowledge and a reflection on the inner self. These activities are focused around the call to help others.[15,40] The Carnegie Foundation for the Advancement of Teaching defined professional formation in terms of three apprenticeships: cognitive, practical and professional formation. The latter is further described as that which 'introduces students to the purposes and attitudes that are guided by the values for which the professional community is responsible'.[41(p12)]

The process of professionalisation, which occurs both during education and practice[34] has also been referred to as professional identity formation (hereafter PIF) reflecting the importance of identity to the process.[42] The AACP White Paper on Pharmacy Student Professionalism specifically mentioned the development of professional identity as part of the professionalisation process.[34] Many students arrive on the first day of the course as having already commenced professional identity development.[43,44] This would be especially true of those students who seek casual employment in pharmacies before starting formal university training.[45] However, once the student commences study, subsequent professional

identity development may be delayed until the scientific basis to pharmacy practice has been mastered.[46] PIF is attracting increasing attention as an essential element of professional socialisation in medical education[40,47,48] and is described as 'the establishment of core values, moral principles, and self-awareness'.[40] Goldie viewed the development of a professional identity as essential to the practice of medicine. Interestingly, he also links low professional identity with underperforming students, which can lead to low retention of these students.[6]

Professionalisation has been identified as a complex process unique to each individual that is influenced by the context and environment in which the development takes place.[40,49] This idea has been supported by the work of several authors who suggest that there is a strong link between socialisation and identity formation.[50,51] Dall'Alba refers to professionalisation as a transformation involving an 'embodiment of understanding of practice' and adds that it is critical during this transition period that the student has the opportunity to consider 'ways of being' as they consider who they are becoming, as well as what they know and what they can do.[7] She notes that professional development programs focus overwhelmingly on the acquisition of knowledge and skills and that this is inadequate for the transformation that is required in becoming a professional.[7] Focusing solely on skills alone and creating highly specific measurable competencies may compromise the realisation of the richness, depth and interconnectedness of professionalism.[50,52]

2.7 Professional education

A significant body of work exists around teaching professionalism instead of professional identity and it proposes important recommendations. In his publication 'Teaching Professionalism: Theory, Principles and Practices'[53], Cruess outlines key recommendations for institutions introducing a professional education program in the area of medical education. He advises that professionalism must be taught explicitly from the first day of the program and continued throughout the course structure[53], a viewpoint supported by other research. [8,13,30,54-56] Importantly the program must begin with an agreed definition of professionalism, which may differ at each institution.[23,53,57-59] This can be problematic. He explored 8 areas for attention in the design of such a program. These include experiential learning, institutional support and evaluation. Moreover, Cruess places particular emphasis on the creation of an environment conducive to professional socialisation. He cautioned that aspects of the informal or hidden curriculum may work against positive professional acculturation.[53] Cruess also draws particular attention to the power of role modeling as a teaching tool and calls it 'the most potent means of transmitting those intangibles called the

art of medicine'.[53(p179)] Others have similarly identified the value of role modeling in professional education.[6,40,60,61,62] In pharmacy education, Schafheutle et al espoused the value of practice-based experiences to the development of professionalism.[63]

In 2007 the US Accreditation Council for Pharmacy Education (ACPE) recognised the importance of experiential learning and released new standards for introductory and advanced practice experiences which remain an integral part of the current standards – Standards 2016.[64] This standard requires a minimum of 300 hours of practice experiences to be incorporated into doctor of pharmacy (PharmD) programs. Subsequent related work has sought to provide support to preceptors as they train students in these settings[45] and assessment protocols to assist student understanding of professional expectations.[10]

Hammer et al[8] described aspects of pharmacy education, that influenced the professional development process in student pharmacists including professional competence, mentoring and modelling, school culture and environment, extra-curricular activities, personal values, communication and empathy. The authors provide general and specific recommendations for educators designing professional education programs extending from recruitment and admissions through to curriculum design and assessment[8]. Sylvia[65] conducted an analysis of the response by US pharmacy schools and colleges to such recommendations. Schools were surveyed to determine the extent of the uptake of the recommendations in areas such as recruitment, admissions, educational programs and practice. The research showed that while white coat ceremonies and student participation in professional organisations were common, less than 50% of the responding schools employed a mentoring program, utilised professional portfolios or conducted dedicated professional development studies. The study revealed a need for an agreed upon definition of professionalism and standardised assessment instruments for the advancement of professional education.[65]

The 2016 ACPE Accreditation Standards for PharmD programs, or 'Standards 2016,'[66] identify professional development as one of 4 main educational outcomes in the PharmD. Central to professional development in accredited PharmD programs are introductory and advanced professional practice experiences (IPPE/APPE). These practice-based experiences allow students to interact with both practitioners and patients, thus progressively enriching their professional knowledge and skill base. Standards 2016 also requires that students experience the practice of pharmacy in a variety of health care settings and amongst other professionals involved with patient care. Through these initiatives it is

envisioned that students will be practice ready and capable of working in multi-disciplinary teams.[66]

2.8 Professional Identity – higher education

According to Trede et al's review[67] there was a lack of research on professional identity development in higher education. The authors reported identity development as 'an underdeveloped field where there is little agreement between scholars'.[67(p375)] The role for universities was discussed and while research activity is low, the dominant viewpoint is that learning directly from the practice is crucial to identity development[67,68] Research supports the importance of experiential learning in the professionalisation of students.[35,67,69,70] Professional identity development also has an important role in the professionalisation of students.[13,32,48,68] Dall'Alba, for example, considered the process of becoming professional to involve thinking, acting and being like a professional[7], a position which highlights the importance of students being given opportunities to directly engage with and reflect on aspects of professional practice.[7,71]

The Trede et al review also called for research into achieving a greater understanding of identity development to inform teaching, learning and assessment of professionalism. Regarding the last, the absence of concrete concepts and accurate measures makes assessing professionalism complex.[3,11,72] The lack of an agreed upon definition for pharmacy professionalism means there is little work in the literature on appropriate assessment tools.[11] Research to date focuses on generating assessment tools, which have been designed around professional attitudes and behaviours.[73-75] In their paper on assessing professionalism, Aguilar et al discuss the strengths and weaknesses of using attitudes, values and behaviours as indicators. They conclude that it would be ideal to assess professionalism on all 3 fronts, but conceded that this may be unrealistic due to existing academic workloads. They recommend the assessment of attitudes using attitudinal scales, as they are simple to conduct and more reflective of the student's professional development than values or behaviours.[3] There are inherent difficulties around making conclusions about student professionalism based on attitudes, values and behaviours, as Hammer suggests, 'acting professionally is not the same as being a professional'.[8(p3)] Kelley et al[72] who revised earlier works to design and validate a Professional Assessment Tool (PAT), an instrument measuring behavioral aspects of professionalism. A recently developed professionalism scale placing identity as the focus of measurement is the 9-item McLeod Clarke Professional Identity Scale (MCPIS)[62], a tool based on an instrument by Adams et al[43] and tested and validated in the discipline of nursing.

Trede et al reported that it is important to adopt teaching strategies, which encourage students to actively develop facets of professional identity. They also revealed that some research saw professional identity development as being the responsibility of the students.[67] Trede et al commented on the need for a more unified and consistent approach and recommend that 'universities need to claim their role in professional identity development to prepare graduates for global citizenship, for leadership qualities and for future practice'.[67(p379)]

Reid et al's study, conducted across a range of professional disciplines in Sweden and Australia saw professional identity development as a way for higher education to prepare students for work.[76] The authors explained that opportunities for 'blurring the boundaries between the academy and work', facilitated identity formation and provided students with knowledge of the profession.[76] The suggested 4 strategies for blurring the boundaries:

- The involvement of professionals with higher education
- The involvement of students in work situations
- The alignment of learning with authentic work practices
- The approach of inter-professional learning

In addition the authors recommend that attention also be paid to the sense of profession created around a particular area of study, and its potential effect on student professional identity development.[48,76] The authors believe that the more authentic the activity, the greater the influence on professional identity development.[76] Their work is in agreement with the well recognised work of Lave and Wenger on communities of practice[77] where professional identity development occurs through student participation in and interaction with professional work settings.

As a result of their work Reid et al developed a model of professional identity development describing it as a function of two dimensions: 'knowledge for the profession' and 'learning for professional work'. The potential outcome of the combination of these two factors is engagement and subsequent identity formation. An artefact of this process is referred to by the authors as the development of 'sensitising dispositions' which orient students within their profession by placing them in context both professionally and personally. In their model these dispositions represent the link between the two dimensions of their model. They not only equip the students with the knowledge base of their studies but also broaden their

professional repertoire to include a level of meaning that is intrinsic to the professional activity.[76]

The ultimate aim of the model is for students to realise and internalise the connection between their individual and professional selves, otherwise defined as the ontological dimension of professional development.[76] This agrees with the work of Dall'Alba, who, in her description of individual trajectories towards professionalisation, stated that educational programs often fail to address these differences in their teaching approaches.[78] Reid et al suggest that student learning trajectories 'are influenced by the ways that the sense of profession is communicated and articulated to students through the design and pedagogy of the educational program'.[48(p734)] Branch[79] proposed that the development of professional identity would be optimal when a combination of teaching methods are employed over an extended period across the curriculum. Experiential learning, critical reflection and small group learning should feature in curriculum design as a combined model and importantly extended long-term over the course structure.[79]

2.9 Professional identity - pharmacy

Schafheutle et al conducted a large study into the common approaches to professional educational adopted by pharmacy schools in the UK. A review of teaching practices and program design looked specifically at how professionalism is acquired in 3 master of pharmacy(MPharm) courses. The researcher compared the approaches of 3 different schools using triangulation methods and curriculum mapping to reveal strategies for teaching professionalism. The importance of role models and practice experience emerged as essential elements in the professional socialisation process. Exposure to practicing pharmacists in the placement setting and academics with ongoing patient contact were most important.[30] Recognition of the value of the early formation of professional identity was highlighted. According to Schafheutle et al professionalism is most effectively achieved through profession related activity such as dispensing sessions, problem solving activities and role playing.[13,30] Student professionalisation was also positively influenced through interactions with 'patient facing' teaching staff, those pharmacist educators who regularly work in hospital or community pharmacy.[80] Trede et al also lent support to these results in their comments on the importance of authentic experiences for professional identity development[67]. A large component of experiential learning in the curriculum such as that stipulated by the ACPE[64] in the US, provides a rich environment for student identity development through concentrated exposure to and engagement with the practice.

Stakeholders in the pharmacy profession are active in driving the cultivation of quality professionals on a global scale. Established in 2001 and controlled by the academic section of FIP, the International Forum for Quality Assurance of Pharmacy Education aimed to advance pharmacy education through the development of a quality assurance framework. The 2014 version of the framework recommended that the pharmacy curriculum include exposure to the practice, as such experiences serve to enhance student professional identity development.[2] The framework quotes The World Health Report that stated students who engage in practical experiences show 'increase in empathy towards people with illnesses, have greater self-confidence and professional identity, and have learned effectively from the knowledge, attitudes, values, behaviours, and judgments of experienced practitioners'.[81 (p48)]

It has been noted by Hammer that students develop professionally as a result of influences from a number of different corners of their educational experience. The design of the curriculum, placement experiences, teaching staff and professional representatives and the overall culture established in the school serve to mold the student towards their professional self.[8] Schafheutle et al group the various influences on professionalism development such as those described by Hammer[8] into the 'intended, taught and received' aspects of the curriculum. They suggest that the greater the overlap or agreement between the three domains the more effective the professional program will be.[82]

Australian pharmacy education researchers investigated the role curriculum plays in the development of student professional identity. Noble et al reported that identity development is an important part of educating pharmacists.[32] Using a qualitative ethnographic study of each year of an undergraduate pharmacy course over a period of four weeks the authors found that there were few opportunities for students to engage and experiment with their pharmacist selves. The authors discuss strategies for identity development including opportunities for experiences with the practice, interactions with practicing pharmacists and an emphasis on patient-centeredness in the curriculum. In addition the authors identify the value of regular feedback in facilitating identity formation. Their research reports limited exposure to pharmacist role models and little opportunity for students to evaluate their own professional identity.[32] These deficiencies in current curriculum approaches need to be addressed if future graduates are to be adequately prepared for the demands of modern healthcare. Trede et al contribute to the discussion by suggesting that educators also need to recognise that professional identity is not a fixed construct and that students must also

have an awareness of the changing nature of their identity as it responds to forces within the modern professional working context[67].

2.10 Conclusion

The professionalisation of students in health education is receiving increased attention, with concerns around student conduct, producing work ready graduates and the increasing demands of a career in healthcare. Additionally as pharmacy moves towards advanced practices and the complexity of the role increases, a corresponding amelioration of educational approaches to professionalisation is required. The process of professionalisation needs to reflect the complexity of the construct of professionalism, moving beyond the demonstration of desirable behaviours, attitudes and values to a more holistic approach of professional identity formation. Identity development research reports on the value of authentic activities, such as the involvement of patient-facing professionals as role models, experiential learning and curriculum alignment with work practices. Curriculum design can exert a significant influence on student identity development, so it is important to consider these educational strategies for identity formation. Educators could place the idea of professional identity firmly in the minds of new students, as something which will chart their transition to a practicing professional and beyond. Further research is however needed in the area of professional identity development so as to inform both effective teaching approaches and assessment strategies.

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3 CHAPTER 3 RATIONALE FOR SELF-DETERMINATION THEORY

This chapter is the second publication from this study and presents a rationale for the application of self-determination theory in professional identity development. Published in *Pharmacy*, this concept paper reports on the increased attention being placed on student professional identity development and explores relevant conceptual models in the literature. The theoretical tenets behind STD are explained with a discussion of possible applications in professional education.

Mylrea MF, Sen Gupta TS, Glass BD. Developing Professional Identity in Undergraduate Pharmacy Students: A Role for Self-Determination Theory. Pharmacy. 2017;5(2):16.

Authors' contributions

Martina Mylrea conceived the idea of the application of SDT to pharmacy education and prepared the manuscript. Beverley D Glass critically reviewed and revised the manuscript prior to submission. Tarun Sen Gupta provided tertiary health education expertise.

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Beverley D Glass

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Tarun Sen Gupta

3.1 Abstract:

Professional identity development, seen as essential in the transition from student to professional, needs to be owned by the universities in order to ensure a workforce appropriately prepared to provide global health care in the future. The development of professional identity involves a focus on who the student is becoming, as well as what they know or can do, and requires authentic learning experiences such as practice exposure and interaction with pharmacist role models. This article examines conceptual frameworks aligned with professional identity development and will explore the role for self-determination theory (SDT) in pharmacy professional education. SDT explains the concepts of competence, relatedness and autonomy and the part they play in producing highly motivated individuals, leading to the development of one's sense of self. Providing support for students in these three critical areas may, in accordance with the tenets of SDT, have the potential to increase motivation levels and their sense of professional identity.

3.1 Introduction

A 2010 report by an independent commission on the education of health professionals for the 21st century called for a renewed approach to health education, one which promoted professionalism and in particular the development of a professional identity.[1] The report came amidst an era where professions and society in general have seen a general decline in professionalism. [2-4] In Australia, academics in health observe mandatory reporting on student conduct and performance to the Australian Health Practitioner Regulation Agency. [5] As a result, there is increased expectation that university health degrees provide opportunities for student professional development. [6]

A shift is occurring with the suggestion that becoming a professional requires more than the acquisition of appropriate attitudes, values and behaviors, that it is a complex process involving the formation of a professional identity. Health education research suggests that the development of a professional identity is essential during the transition from student to professional.[7-10] Cruess et al emphasise that students need the opportunity to 'think, act and feel' like a professional during their studies. [7]

In pharmacy education, however, research has indicated that identity development has been neglected in pharmacy curricula,[8] often being deferred until the final stages of the degree.[11] Several authors have defined professional identity[12,13] with Skorikov and Vondracek highlighting the interplay between human motivation and relevant skills and knowledge. They state that a professional identity is represented by:

> 'a complex structure of meanings in which the individual links his or her motivation and competencies with acceptable career roles'.[14]

A recent review of identity development in higher education by Trede et al, reflects the position of the independent commission on the education of health professionals, [1] where Trede states that 'Universities need to claim their role in professional identity development to prepare graduates for global citizenship, leadership and future practice' (p. 379).[15]

This paper presents a discussion around professional identity development in health education broadly and pharmacy education in particular. Conceptual frameworks currently aligned with professional identity development will be explored. Finally we propose self-determination theory, [16,17] a motivation-based theory, as a theoretical framework for professional identity development in pharmacy tertiary education.

3.2 Professional Education and Identity

Researchers in medical education have been particularly active in the area of identity development with Cruess et al recently stating that professional identity should be the foundation of professionalism.[18] Dawodu and Rutter have highlighted that the responsibility of professionally preparing students has increasingly fallen onto academic educators. [19] There is, however, a lack of research into professional identity development in tertiary education[15] and as a result there is little understanding of how to develop such an identity within each student. Research into the development of effective teaching approaches that foster professional identity formation is therefore needed.[7,15]

Trede et al state that for identity development to occur, learning must happen through direct contact with the practice.[15] Experiential education with its exposure to practicing professionals and patients is essential for student identity development. [20] While work placements are regarded as the ideal approach for student immersion in the profession, [6] in reality schools of pharmacy face shortages of clinical placements, [21] which may also deliver inconsistent experiences amongst students. [6,22] In an effort to increase exposure to practice, some courses have turned to technology, bringing virtual clinical placements into the curriculum. [22] Practical classes such as compounding and clinical dispensing sessions as well as exposure to professional role models such as patient- facing pharmacists/academics, have also been identified as particularly effective strategies for student professional development. [23] According to Reid et al, it is the authenticity of the learning experiences which is important for successful identity development. [24]

Dall'Alba describes becoming a professional as a transformation that is unique to each individual. [25] She warns that educational programs failing to acknowledge and provide support for this transition may contribute to a 'crisis of confidence in professional education' (p. 136).[25] This crisis relates to the inadequacy of professional education programs to train students to cope within the modern healthcare context. She cites advances in information technology, new conceptualisations of interdisciplinary contexts and changing knowledge as contributing to the rapidly evolving professional landscape. Dall'Alba states that a focus on skills and knowledge alone is insufficient to adequately prepare the student to cope with this challenging and dynamic setting. She also explains that the current theory–practice gap, which exists in many programs, prevents students from thinking as, acting as or being a professional.[25] With a similar view, Cruess et al explain that while professional attitudes, values and behaviours are essential to the developing professional, they do not account for the entire process behind becoming professional.[7] They believe that this occurs through a

process of internalisation, where the student comes to 'think, act and feel' like a professional.[7] In order to achieve this they state that the development of a professional identity should be one of the main goals of a medical educational program.[7] The concept of professional identity development is emerging as a complementary and perhaps crucial element to meaningful and lifelong professional growth.[7,26,27]

It has been established that curriculum design can exert a significant influence on student professional identity development,[6,25,27] so it is important to consider educational strategies for identity development.[7] As Reid et al explain, student learning trajectories 'are influenced by the manner in which the sense of the profession is communicated and articulated through the design and pedagogy of the educational program' (p. 734).[27] Adams et al suggest that the task for educators is to find a framework for educational programs so that they can best prepare students for their professional role.[28]

Optimal conditions for identity development should use an integrated approach whereby experiences on placement are addressed and reinforced as part of curriculum coursework.[6,29] Branch stated that a combination of teaching methods should be employed over an extended period across the curriculum. Approaches including experiential learning, critical reflection and small-group teaching should feature in curriculum design as a combined model and importantly extended long term throughout the course structure.[30] While these strategies are well-supported in the literature, a sound theory-based approach to identity development is needed, one which will translate through to effective teaching strategies at the classroom level. Research clearly supports introducing concepts surrounding professionalism and professional identity early in the course structure, thus providing students ongoing opportunities to relate to and engage with the profession.[7,9,23,31]

3.3 Pharmacy Education and Identity

Professional identity development is a concern at the highest level of pharmacy education policy development. The International Forum for Quality Assurance of Pharmacy Education was established by the International Pharmaceutical Federation (FIP) in 2001. In their 2014 framework for the quality assurance of pharmacy education,[32] they quote the World Health Organisation's World Health Report, [33] which espouses the benefits of authentic, practical experiences for health students. The report states that students who are exposed to the practice experience:

> 'an increase in empathy towards people with illnesses, have greater self-confidence and professional identity, and have learned effectively from the knowledge, attitudes, values, behaviours, and judgments of experienced practitioners' (p. 48).[33]

A number of researchers have reported on the essential role of experiential learning in developing pharmacy students as professionals.[6,11,34] Stupans and Owen report particularly on the importance of planned integration of practice-based learning within the overall curriculum.[6] The Schafheutle review of pharmacy schools in the UK identified role models and exposure to the practice as critical elements in the professional development process.[31] Contact with practicing pharmacists in the placement context was identified as most influential. [23] A study by Harding and Taylor viewed both pharmacist academics and practicing pharmacists as important role models for the professional socialisation of students and reported on the high regard students have for the presence of practicing pharmacists during their studies.[35] A threat to this enrichment is the declining numbers of full-time practicing pharmacists in pharmacy schools, which limits the access students have to practicing professionals.[11] To address this many schools have resorted to part-time con-joint appointments to maintain the presence of practicing pharmacists.

Research carried out at an Australian university examined the role of curriculum in professional identity development. Noble et al utilised a qualitative ethnographic study to explore the views of students across all years of an undergraduate pharmacy course.[8] The research revealed that there were few opportunities where students could explore their professional identity. There were limited opportunities for interactions with pharmacist role models and little reflection on the progress towards their identity development. The authors saw these as lost opportunities in the curriculum. They commented on the importance of starting a dialogue around what it means to be a pharmacist, and to provide opportunities for interactions between students, pharmacists and patients. Providing feedback on student submitted work was also regarded as an effective strategy for fostering identity development, [8] a result supported by other studies. [36,37] Feedback in the form of evaluation against internal standards, or provided by practicing pharmacists and educators, is important for student experience and reflection. Feedback provides the validation or confirmation needed by the student throughout the identity formation process.[8]

The importance of professional identity development in pharmacy education is beginning to emerge,[8,31,35,38] however, it is commonly deferred until the final stages of the course once required scientific foundations such as chemistry and physiology have been covered.[35] This removes the practice of pharmacy from being patient-centered in the early stages of the course, moving to a sole focus on, for example, the chemistry and biological foundations of pharmacy.[11] A consequence of this is delayed professional acculturation and the diminution of the importance of the professional role. This is in contrast to more recent thinking by those

who believe that professional education must begin at the outset of the course and continue for the duration of study.[30,39,40]

3.4 Theoretical Frameworks

In their review of professional identity development in higher education, Trede et al commented on the wide variety of theoretical frameworks applied to this area. There is unfortunately a lack of consensus amongst researchers as to the most effective approach to professional identity development.[15] Their review reported theories including Wenger's theory of communities of practice and situated learning,[41] a theory often quoted in the area of professional education. Learning theories such as Schon's reflective practice[42] and Mezirow's critical reflection[43] have also appeared in studies relating to professional identity.

Early work by Merton[44] referred to professional identity as developing through thinking, acting, and feeling like a member of the profession. This work prompted Cruess et al to define identity development as a stage dependent development of self [7]. Dall'Alba similarly supported the development of a 'sense of being', recommending the integration of epistemology and ontology as a framework for professional education.[25] She has stated that students will take a variety of trajectories on their professional development path, characterised by individual transition.

To gain a better understanding of how students develop a sense of professional identity, Reid et al[27] conducted a collaborative study between research groups in Sweden and Australia. They investigated student perceptions of how education and experiences of professional work contributed to their professional identity. From this study a model for professional identity development was formed. Reid et al[24] proposed that professional identity development can be described as a function of two dimensions: 'knowledge for the profession' and 'learning for professional work'. Successful intersection of these two dimensions results in connection with the profession and subsequent identity formation. The authors refer to the development of 'sensitising dispositions', an artefact of this process, which orients the student within their profession by placing them in context both professionally and personally. These dispositions represent the linking fabric between the two dimensions of their model and extend student professional learning beyond skills and knowledge to ontological aspects of professional practice,[24] such as those proposed by Dall'Alba.[25] The authors made four recommendations for professional socialisation, calling them strategies for 'blurring the boundaries': (1) involve practicing professionals in higher education, (2) include students in work situations, (3) align learning with authentic work practices and (4) create opportunities for inter-professional learning.

The ultimate aim as described by the authors is the realisation and internalisation of a connection between their individual and professional self, otherwise defined as the ontological dimension of professional development.[24] This is clearly in agreement with the work of Dall'Alba in her description of individual trajectories towards becoming a professional in a particular field. She states that educational programs often fail to accommodate these differences in their teaching approaches.[25] Holden et al established a steering committee to develop a framework around which professional identity could be fostered and assessed. The framework identified six domains and thirty subdomains to capture the complexity of professional identity across three developmental phases: Transition, Early Developing Professional Identity and Developed Professional Identity. [45] Unlike the models previously discussed, Holden et al offer practical teaching strategies and learning environments, which have been shown to promote professional identity development. Their model encourages the integration of their framework into existing curricular structures, thus capitalising on established teaching and assessment approaches.

3.5 Self-Determination Theory

The absence of a theoretical basis for professional identity development in health programs is clear. An understanding of the mechanism behind human identity development is required, in order to accurately inform curriculum initiatives for the formation of professional identity. In the 1980s, psychologists Deci and Ryan from the University of Rochester, USA, developed a theory to explain identity development.[46] Self-determination theory (SDT), now long standing and widely applied, defined the role of motivation regulators in the formation and maintenance of identity. The authors describe human motivation as lying on a continuum that features three categories of motivation; amotivation, extrinsic motivation and intrinsic motivation, the latter representing the most autonomous state (Figure 3-1).

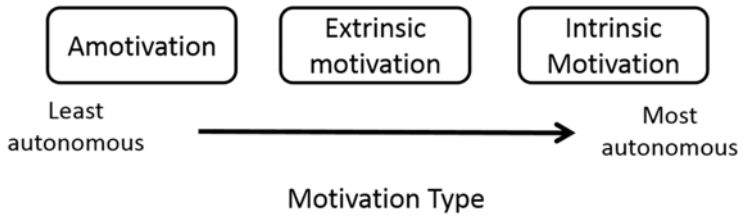

Figure 3-1 Diagrammatic representation of motivation types as described by Self-Determination Theory. Adapted from Ryan and Deci [47].

According to SDT, motivation is described as being absent (amotivation), driven by external forces such as monetary awards (extrinsic), or activated by internal forces (intrinsic), such

that individuals willingly engage in the pursuit for interest or enjoyment. It is during this transition from external to internal regulation, where identity is internalised and becomes part of the individual's sense of self.[48] Their theory proposes that high levels of motivation are supported through the satisfaction of three fundamental human psychological needs, or nutriments, namely competence, relatedness and autonomy.[49] Competence is the ability to demonstrate mastery in a particular area or in other words to have some effect on their surroundings.[50] Relatedness refers to the need to have connections with and to care for others[50] and autonomy refers to the propensity of an individual to self-organise experiences and actions, the authors making comparison to the concept of volition.[50] Individuals who experience support and growth in each of these three areas are more likely to have high levels of motivation and to develop and maintain the particular identity in question. High levels of motivation are also associated with success and wellbeing.[51,52] The more an identity is internalised 'the more it will represent a deeply held and flexibly enacted aspect of one's identity and self' (p. 262).[49]

3.6 Pharmacy Education and SDT

The use of SDT as a theoretical basis upon which to develop professional curricular initiatives in pharmacy education may be appropriate on three fronts. Firstly, the application of this theory may be well placed given the obvious role played by competence, relatedness and autonomy in professional pharmacy practice and in general healthcare. An examination of the conceptualisation of professionalism by the American Association of Colleges of Pharmacy (AACP), will find descriptions of safe, efficacious and *competent* practice of the qualified professional, *relatedness* reflected in the fiduciary relationship between the pharmacist and the patient and *autonomous* behaviors such as decision making and self-education.[53] A similar comparison can be made with the Australian Code of Conduct[54] for registered health practitioners and the Code of Ethics for Pharmacists.[55]

Secondly, SDT has already been identified as having particular relevance in the field of medical education[45,56-58] and thus could equally be seen to have application in pharmacy education. Te{Noble, 2014 #1401}n Cate et al have explored the opportunities for integrating SDT into medical school curricula. The value of SDT for medical students is seen as an opportunity to create motivation for learning by increasing their sense of competence, autonomy and relatedness. The authors highlighted curriculum structure, classroom teaching, assessments and clinical training as areas where the role of SDT could be expanded.[56] Professional identity development however was not addressed specifically, other than to say that it is affected by the learning environment. To increase the impact of

SDT in the curriculum, Ten Cate et al suggested stimulating motivation through student-centered education such as problem based learning and the use of small group teaching.[56] Both approaches enhanced student relatedness and autonomy by encouraging and acknowledging student opinion and input. Also of interest is the suggestion that professional identity development may be enhanced by giving students opportunities to be more autonomous and less controlled by academics in their approach to learning.[56] This might involve allowing students to make choices about timing of assessments and being coached in learning styles and self-regulation techniques. Inviting students to become assistant instructors was also seen to enhance feelings of competence and autonomy. Early patient contact and participation in professional workplaces, such as during experiential placements, particularly enhanced student competence, relatedness and autonomy.[56] Also working in medical education, Kusurkar et al espouse the value of autonomy-supportive classroom teaching techniques for developing intrinsic motivation in medical students. The authors make twelve recommendations which include identifying student needs, encouraging active participation, constructive feedback, emotional support and allowing students to make choices about their learning.[59]

Finally, approaching professional identity education from a proven theoretical framework such as SDT provides a foundation for curriculum design, which is based on an established mechanism for human identity development. Increased understanding of the motivational processes behind identity formation and integrated curricular support for the SDT nutriments (competence, relatedness and autonomy) may facilitate professional identity formation by assisting the student to 'think, feel and act' like a pharmacist (Figure 3-2).

Figure 3-2 Conceptualisation of the role of self-determination theory nutriments in the development of professional identity.

According to SDT, identity development is a result of a process of internalisation, occurring as the student transitions from extrinsic through to an intrinsic state of motivation.[17,47] Recent publications exploring professional identity development refer to the importance of

'internalisation' during the process of becoming a professional.[7,24] There appears to be an interesting synchronicity between SDT and professional identity development, one which may serve to enhance approaches to professional education. Therefore it is reasonable to postulate that by embedding the principles of SDT within pharmacy professional education, a positive influence on professional identity formation may be realised.

3.7 Conclusions

Adequately preparing students to cope with the demands of a changing and challenging health care setting requires the facilitation of professional identity development. Experiential learning through work placements, exposure to and interaction with practicing pharmacists and teaching sessions related to the practice are most effective for promoting identity formation. This paper proposes, in addition, a role for SDT as a theoretical framework for professional identity development in pharmacy education. An opportunity exists to apply this established theory in motivational psychology with its inherent link to identity development. Providing support for student competence, relatedness and autonomy within a professional pharmacy degree program may better prepare graduates for entry into the contemporary healthcare workplace.

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4 CHAPTER 4 PROGRAM STRUCTURE AND DESIGN

This chapter provides detail on the structure of the Professional Identity Program (PIP), and the theoretical rationale behind its design. Included also is an explanation of the evaluation schedule and a sample workshop plan.

Figure 4-1. Features of the professional identity program

4.1 Introduction

The design of the Professional Identity Program is based upon the basic tenets of self-determination theory (SDT). Accordingly, the aim behind the program was to support student competence, relatedness and autonomy, while simultaneously providing opportunities for engagement and connection with the pharmacy profession from the first year of study (Fig.4-1). The need to explicitly teach professionalism, including professional identity formation[1] was also addressed, incorporating group discussions and interactive activities around the concept of professionalism and individual professional identity formation.

The program provides students with the opportunity to, as Dall'Alba states, 'think, act and feel' like a professional.[2] This places emphasis on who the student is becoming, laying a foundation for the eventual transition into the professional workplace.

4.2 The student cohorts

Two student cohorts, or student intakes, were used in this study. The design of this study used a baseline cohort from which data were collected on motivation and identity using the Pharm-S and the MCPIS-9 respectively, over a period of 24 months. This baseline cohort did not receive the professional identity program, with the first year intake for the year 2014 designated as the baseline cohort. The 2015 cohort, was a subsequent first year intake which received the professional identity program and were surveyed in the same manner as the 2014 baseline cohort. The purpose of the baseline cohort was to make available a point of comparison for those students who would receive the training,

The typical intake into first year of the JCU BPharm is approximately 50 students. The majority of these students are school-leavers embarking on their first undergraduate degree. A small fraction of the intake have either completed another degree or have been in the workforce for some time. The average age of the two cohorts was 20 years of age and around 60% chose pharmacy as their first preference. The two cohorts are quite dissimilar in their proportion of male and female students. The 2014 intake had a much larger proportion of females than the 2015 intake (Table 4.1). This is an unusual characteristic as the average percentage of females for the intakes between 2014 and 2018 is approximately 60%.

Table 4-1 Demographics of the first year BPharm cohorts in 2014 and 2015

Characteristic	**First year intake (2014)**	**First year intake (2015)**
Age, mean(SD) yrs	20.1 (5.5)	20.0 (5.8)
Sex: female, %	87.5	55.3
Pharmacy was the course of first choice: yes, %	60	62
Worked or works in practice: yes, %	32.5	21.3
Total enrolment (n)	61	50

4.3 Supporting competence, relatedness and autonomy

Strategies for supporting student competence, relatedness and autonomy have been summarised by Orsini et al[3] (Table 4-1) and represent a collection of teacher behaviours and teaching styles, designed to promote student intrinsic motivation. The strategies were used in the design and delivery of the PIP.

Table 4-2 Strategies for Supporting Basic Psychological Needs identified by Orsini et al[3], used in the Professional Identity Program (PIP) Workshops. (reproduced with permission)

Need	Competence	Relatedness	Autonomy
Strategies	• Provide optimal challenges • Provide structured guidance • Value students work • Give positive and constructive feedback	• Respect students • Give emotional support • Acknowledge students' expressions of negative effect	• Identify what students want • Provide different learning approaches • Give value to uninteresting tasks • Promote active participation • Give choice • Give learning responsibility • Provide freedom • Avoid external reward.

4.4 Professional Identity Program (PIP) structure

Existing research reports on the value of reflection, authentic activity and the involvement of role models in student professional development. [4,5] Cruess et al see these strategies as equally applicable to professional identity formation[1] and were thus incorporated into the design of the PIP. Table 4.2 outlines the structure of the PIP. Interactive workshops were integrated into the existing structure of the BPharm, distributed across the first two years of

the BPharm program (Table 4-3). The workshops were incorporated into each of the professional practice subjects (1 per semester) for the two year program, it was important that the students saw the professional workshops as a recurring theme across the two years. The workshops were scheduled within the existing timetable, making use of spare workshop/tutorial sessions.

4.4.1 Workshops

The term workshops was used to encompass a variety of learning environments designed to engage and encourage participation. There were ten workshops in total, all of which presented a range of learning environments which gave the students the opportunity to engage in authentic activity and explore their own professional identity. They were designed to be varied and engaging, with minimal reliance on traditional didactic teaching. Some workshops involved group discussions and activities, an analysis of a video role play and working in the compounding laboratories. Research discussed previously has highlighted the importance of engaging students in dialogue around the development of professionalism and professional identity. To achieve this the PIP began with a series of interactive workshops, featuring large and small group discussions, to explore the meaning of professionalism and professional identity formation. Competency standards and professional practice standards relevant to the pharmacy profession were discussed. The aim of these sessions was to, as Noble et al[6] suggest, initiate a dialogue with the students, around professionalism and professional identity. Workshop 2 which focused specifically on the concept of pharmacist identities involved an activity which required students to discuss the nine identity types and to indicate on boards around the room which identities they found relevant or appealing to them and explain why. The group then came together to share their views on the multiple identities and which ones they felt would be most relevant to their future practice.

Workshop 4 used a video of a role play of a pharmacist counselling a patient to initiate discussion around the role of professionalism in the day to day practice of pharmacy. The role play included an example of effective and professional counselling and an example of un-professional counselling to encourage discussion of the standards around professional practice.

Workshop 5 involved the students working in small groups to write statements which would be appropriate to include in a professional oath. The final agreed upon version would be used as part of the white coat ceremony, to be held at the end of first year. This invited the students to consider what they considered to be essential attributes of the practicing

pharmacist, and the aspects of professional practice which were important to them. The students also recorded their reflections on their professional development in Workshop 7, an extended reflective activity, during which they had the semester to create in an individual blog using the PebblePad platform. Individual feedback was given on submitted blog posts.

Table 4.3 Professional Identity Program (PIP) Workshops

Workshop		Title	Description
1	L1:Sem 1	Introduction: Professionalism and professional identity	Definitions of professionalism USA, Australia Code of Ethics 2011, Code of Conduct 2014
2	L1:Sem 1	Pharmacist identities	Explore multiple Identities of the Pharmacist[7]
3	L1:Sem 1	Professional identity development	Group discussions: The rural pharmacist
4	L1:Sem 2	Exploring the role of the pharmacist	The counsellor: Video analysis The medicine maker: Compounding activity
5	L1:Sem 2	A pharmacist's oath	Group discussions: creation of an oath
6	L1:Sem 2	White Coat Ceremony	Welcome to the profession, oath and white coat
7	L2:Sem1	My professional identity	Extended reflective activity: PebblePad+ platform
8	L2:Sem1	Compounding group project	Compounding scenario activity (2 x 3hrs)
9-10	L2:Sem2	Emotional intelligence training	Group activities and discussion (2 x 2hrs)

L1= First year, L2=Second year, Sem=Semester (The BPharm consists of two semesters per calendar year)

The final workshop presented an introduction to emotional intelligence training using a small group activity to illustrate the importance of communication and emotional awareness in the workplace. Emotional intelligence training was included in the program for its role in developing self-awareness and professionalism.[8] All sessions were delivered in the presence of a practicing pharmacist, giving the students opportunity to interact with an experienced member of the profession.

Table 4.4 Professional Identity Program (PIP) Workshops

	Year Level	
Semester	**FIRST**	**SECOND**
1	Workshop 1	Workshop 7
	Workshop 2	Workshop 8
	Workshop 3	
2	Workshop 4	Workshop 9
	Workshop 5	Workshop 10
	Workshop 6	

4.5 Evaluation schedule

The evaluation instrument consisted of the MCPIS-9[9], the Pharm-S[10] scale and demographic questions. Two years of first year intake were used in the study. Students in the 2015 cohort were given professional identity training in the form of the PIP. The students in the 2014 cohort did not receive professional identity training (non-PIP), and were used as a baseline for comparison with the PIP students. Evaluation occurred for both cohorts at time periods T=0, 12 and 24 months.

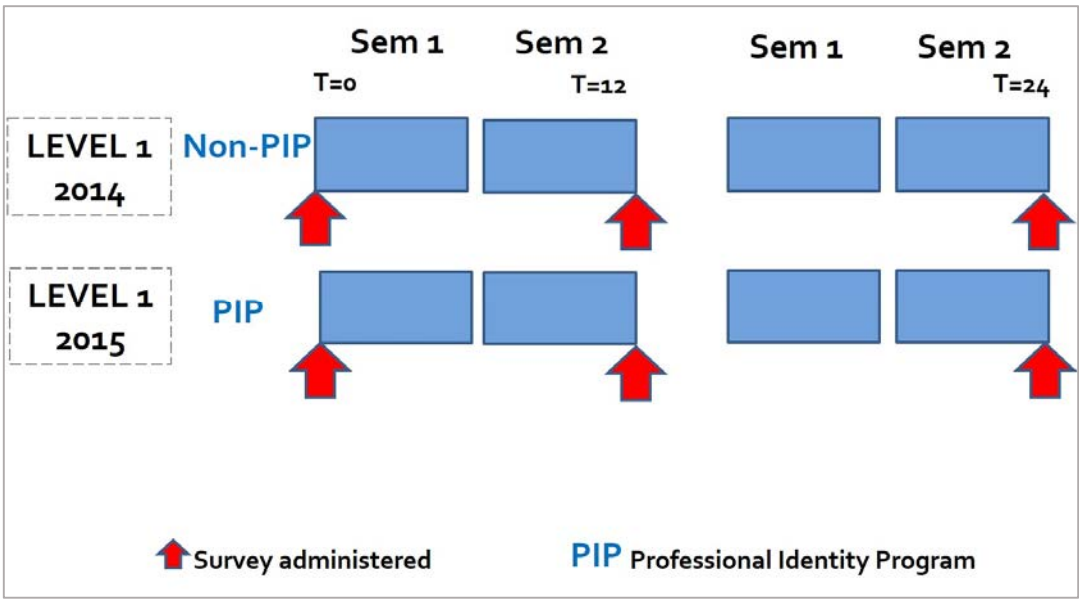

Figure 4.2 Evaluation schedule during 2014 and 2015

4.6 Sample session planning

JAMES COOK UNIVERSITY AUSTRALIA	PROFESSIONALISM IN PHARMACY

Year Level: 1 Date: 6/3/2015

LEVEL 1 SEMESTER 1 SESSION 1

Outcomes/Essential Learnings or Skills

Introduce the concept of professionalism as a health professional.

Objective: What specific part of this broad goal does this lesson aim to develop?

Be familiar with the PBA Code of Conduct and the PSA Code of ethics as underpinning professionalism in pharmacy in Australia.

Know and Do: By the end of the lesson what knowledge (content and understandings) and skills (processes) do students need to develop?

Students need to be aware of ...	Students need to be able to ...
The policies and documents underlying professional conduct and behavior.	Explain the essential traits and characteristics of a practicing pharmacist.

Resources needed:	Butcher's paper Pens

Session delivery

Introduction - key learnings and how they will be achieved

Time Allocation: 5 min

Objectives and purpose of this session.
Overview of activity and what students should expect to know by the end of the session. Powerpoint slides 1 – 3.

Induction - an activity related to the learners' experience

Time Allocation: 20 min

GROUP DISCUSSION: as per questions on p.2 of the manual.

Each group to contribute 3 words which they feel is central to professionalism. Write up on the main board.

Input – introduce new content

Time Allocation: 10 min
Powerpoint slides 4 – 7.
Professionalism definitions – US, AUS
Code of Ethics 2011, Code of Conduct 2014

Implementation – opportunity to synthesise and engage with new content

Time Allocation: 5 min
Read section 1.2 Professional , qualities and values in the PBA Code of conduct 2014

Integration - reviewing learning/ Summarising/Articulating where to next

Time Allocation: 5 min

Ask students to reflect on the lesson; what have they learned; what will they do with it?

- Summarise the entire session
- Allow for questions
- Ensure the learners understand how this lesson fits into the course and introduce the next topic and how it will build in this lesson.

Discuss interview task – to bring to next session.

4.7 References

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5 CHAPTER 5 INSTRUMENT VALIDATION

This chapter reports on the procedures and outcomes of the validation of the Pharm-S, the pharmacy motivation scale. It is the third publication from this study and was published in the journal *Currents in Pharmacy Teaching and Learning*.

Mylrea MF, Sen Gupta TS, Glass BD. Validation of a motivation survey tool for pharmacy students: exploring a link to professional identity development. Currents in Pharmacy Teaching and Learning. 2017 9(5), p 763-769.

Authors' contributions

Martina Mylrea adapted the Pharm-S instrument from the SMS-II (Sports Motivation Scale-II), conducted the necessary validation procedures and analyses, and prepared the manuscript. Beverley D Glass critically reviewed and revised the manuscript prior to submission. Tarun Sen Gupta provided tertiary health education expertise.

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5.1 Abstract

Objective: Self Determination Theory (SDT), which describes a continuum of motivation regulators is proposed as an appropriate framework to study pharmacy student motivation. The aim was to develop a Pharmacy Motivation Scale (Pharm-S) to determine motivation regulators in undergraduate students and explore a possible link to professional identity development.

Methods: The Pharm-S was adapted from the SDT-based, Sports Motivation Scale (SMS-II), and administered to undergraduate students in an Australian pharmacy course. Convergent validity was assessed by conducting a correlation analysis between the Pharm-S and MacLeod Clark Professional Identity Scale (MCPIS-9).

Results*:* Face, content and construct validity were established for the Pharm-S through the analysis of 327 survey responses. Factor analysis extracted four of the six theoretical subscales as proposed by SDT (variance explained: 65.7%). Support for the SDT structure was confirmed by high factor loadings in each of the subscales and acceptable reliability coefficients. Subscale correlations revealed a simplex pattern, supporting the presence of a motivation continuum, as described by SDT. A moderate positive correlation (0.64) between Pharm-S responses and the validated professional identity instrument, MCPIS-9, indicated a possible link between levels of motivation and professional identity.

Conclusions*:* Content and structural validity and internal consistency of the Pharm-S confirmed the reliability of the Pharm-S as a valid tool to assess motivational regulators. Pharm-S and the MCPIS-9 were positively correlated, lending support to a link between motivation and professional identity. This suggests a potential role for the Pharm-S as a valid tool to measure pharmacy student professional identity development.

5.2 Introduction

Student professional development in health education has received increased attention in the tertiary sector and is one of four essential educational standards outlined in 'Standards 2016'[1], by the Accreditation Council for Pharmacy Education (ACPE). In 2010 an independent commission into the state of global health education, called for a re-think of professional health education, including a specific focus on the development of professional identity.[2] The World Health Organisation highlighted the importance of practice-based experience for identity development in their World Health Report in 2006, citing its value in developing empathetic and confident health professionals.[3] Professional identity formation (PIF) has been recognised as an essential aspect in discipline specific areas with pharmacy[4-6], nursing[7,8], dentistry[9] and medicine[10-12] in particular supporting the role for professional identity development.

In their review of professional identity development in higher education, Trede et al[13] reported a lack of understanding of professional identity formation (PIF) and consequently there were few recommended approaches for facilitating its incorporation into health education. The review also stated that universities needed to consider the role for professional identity development in existing curricula.[13] The American Association of Colleges of Pharmacy, Council of Deans (AACP-COD) established the Taskforce on Professional Identity Formation, releasing a definition for PIF in 2014 as being '… the transformative process of identifying and internalising the ways of being and relating within a professional role.'[14] A Professional Identity Formation Task force was established by the University of Texas in 2011, with multiple objectives around the definition, teaching and assessment of professional identity. They identified 6 domains and 30 sub-domains in their development of a PIF framework.[15] Dall'Alba's research into the development of the professional, explained that the journey towards becoming a professional is an individual one, with the aim being to develop the ability to 'think, act and feel like a professional'.[16] Researchers in medical education in the US have supported this view and stated that a primary goal should be the development of a professional identity.[11] Cruess et al[18] have proposed a revision of Miller's pyramid of clinical competence[17], placing identity at the apex, highlighting the importance of both cognitive and affective development in identity formation.[18] Cruess et al[18] have also called for research into approaches that gauge professional identity development, alongside the traditional markers for professional conduct.

In the search for an appropriate framework from which to approach professional identity development, this study proposes that Self Determination Theory (SDT)[19-21] may serve as a basis for a tool to monitor professional identity development. SDT (an organismic dialectical theory) developed by psychologists Ryan and Deci in the 1980s, is a long established and well regarded theory that has been applied widely in the areas of education, parenting, health care and many other disciplines.[22] It is a theory of human motivation that describes a continuum of six motivation regulators ranging from least motivated (Amotivation) to highly motivated (Intrinsic motivation). Extrinsic motivation completes the continuum between amotivation and intrinsic motivation and is characterised by four sub-classes, which vary in their relative degree of autonomy and self-determination (see Fig.5-1).

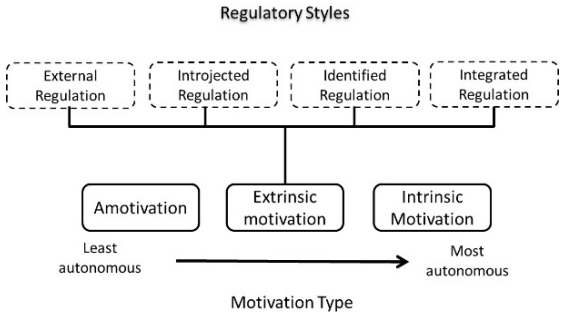

Figure 5-1 The Self-determination continuum by Deci & Ryan[23]

The four sub-classes, in order of increasing autonomy are external, introjected, identified and integrated regulation. External regulation describes the type of motivation which is governed by external factors such as monetary reward or the threat of punishment. In this sub-class control is exerted by others upon the individual, whereas in the introjected sub-class the control moves to the individual. Motivating factors such as self-worth and guilt and shame typify this sub-class, where the process of internalisation into the self begins. For the identified sub-class, motivation regulation develops as a reflection of the value system of the person. Individuals choose to engage because they see it as being of value to their health and well-being for example. The final sub-class of extrinsic regulation is integration, where the individual has transformed from being externally regulated by another, to being self-regulated. In this class the individual identifies with the inherent behaviors and integrates them with their sense of self.

Importantly, SDT describes a relationship between motivation for a particular activity and individual internalisation of that activity, or incorporation into one's sense of self. For example the transition from amotivation through to intrinsic motivation occurs through a process involving internalisation and integration, where the activity or pursuit becomes part of the individual's identity:

> 'According to SDT, these different motivations reflect differing degrees to which the value and regulation of the requested behavior have been internalised and integrated. Internalisation refers to people's 'taking in' a value or regulation, and integration refers to the further transformation of that regulation into their own so that, subsequently, it will emanate from their sense of self'.[20]

SDT explains that high levels of motivation are seen in individuals who are supported in three main areas; competence, relatedness and autonomy. The role of SDT in professional development may be particularly relevant, as the same elements which nurture human motivation, could also be considered as core characteristics of the practicing professional.

A collaboration between the creators of SDT and psychologists in Canada resulted in the development of the Sports Motivation Scale[24] (SMS). This instrument examined motivation regulators present in athletes in various sporting disciplines. It consisted of 18 items which were designed around the 6 subscales, which make up the continuum of motivation regulators discussed above. The SMS was further refined and validated, resulting in the SMS-II in 2013.[25]

In order to investigate motivation regulators in pharmacy students and implied levels of internalisation, this study adapted the SMS-II to reflect the context of undergraduate pharmacy students. Accepted procedures[26-28] including face validity, test-retest validity, construct validity and convergent validity were used to validate the new survey tool.

The increased level of interest in professional identity development in professional health education, prompted this study to investigate SDT as a suitable framework for gauging professional identity formation. The main objective for this investigation was to develop and validate a tool which could be used to reveal the types of motivational regulators present amongst students studying pharmacy. As SDT describes a link between levels of motivation and internalisation, this study will also explore whether there is a correlation between levels of motivation and professional identity.

5.3 Methods

Context

The survey targeted all students enrolled in the four year undergraduate Bachelor of Pharmacy (BPharm) course at James Cook University (JCU), Townsville, Australia. The BPharm is the standard four year undergraduate degree which is the accredited and accepted qualification pathway required to become a practicing pharmacist in Australia. Students were invited to volunteer in the study. Ethics approval was sought and granted by the JCU Human Research Ethics Committee (Approval No.:H5445).

Design

The survey tool was created by adapting the18-item Sports Motivation Scale (SMS-II[25]) to examine the reasons students have to study pharmacy. The intention of the adaptation was to adhere as closely as possible to the structure of the original instrument. For example in the amotivation regulatory style, the original tool states: 'I used to have good reasons for doing sports, but now I am asking myself if I should continue'. The adapted survey stated 'I used to have good reasons for studying pharmacy but now I am asking myself if I should continue'. Most of the adapted statements replaced the reference to sporting activity with the word pharmacy. More significant changes were made to the wording in order to more accurately represent the context of studying pharmacy. For example, the original item: 'Because I find it enjoyable to discover new performance strategies' was altered to read: "For the satisfaction of learning about new developments or innovations in pharmacy practice". The MacLeod Clark Professional Identity Scale (MCPIS-9)[29] was also included as part of the survey instrument. The MCPIS-9, a validated survey used to determine the professional identity of health students including pharmacists,[29] was based on work done originally by Brown et al[30] to measure identity in factory workers. The MCPIS-9, a nine-item likert based scale, has also been used more recently to determine the professional identity of nursing students.[31]

Accepted procedures[26,27] were carried out in order to validate the adapted Pharm-S scale. This included face validity, content and construct validity and to achieve convergent validity, the MCPIS-9[31] was included in the survey for comparison purposes. Face validation and test-retest correlation (one week) were carried out with the participation of a group of ten student volunteers, representative of all the four years in the undergraduate pharmacy course.

Sample

The sample targeted undergraduate pharmacy students enrolled in the BPharm at James Cook University. Students were invited to participate in the study after a brief explanation of the project and a follow up email. Participation was on a voluntary basis. The combined sample population consisted of 242 females and 85 males with a mean age of 20.8 years.

Instrument

The survey consisted of two sections: the first section included demographic questions such gender, age, level of education and work experience in a pharmacy. The second section included the adapted survey (18 items) and the MCPIS-9 (9 items). The adapted survey questions were randomised as part of the survey delivery, so as not to suggest the underlying structure to the participant. The survey was delivered online and incorporated blank answer warnings to reduce the occurrence of missing data. A five-point Likert-type scale was used to measure participant responses, which ranged from “corresponds completely” to “does not correspond at all” as per the validated survey instrument by Pelletier et al.[25]

Statistical analysis

Data screening was carried out to remove incomplete cases and those considered disingenuous, with 13 cases removed due to identical answers on all items. After removal there were 327 items available for analysis. Statistical Package for the Social Sciences software (Version 23.0, SPSS Inc, Chicago, USA) was used to carry out the data analysis. To determine the underlying structure of the adapted survey (Pharm-S), exploratory factor analysis with varimax rotation was carried out on the completed surveys collected from 2014 to 2016 (n=327). Prior to this analysis, the Kaiser-Meyer-Olkin (KMO) measure for sampling adequacy and Bartlett’s test of sphericity were used to indicate suitability for structure detection.

Reliability analysis was also carried out on the subscales using Cronbach’s alpha for internal consistency (A Spearman-Brown test was used for two-item reliabilities[32]). Possible values range from 0 to 1 with higher values indicating a higher degree of consistency within the

scale. A reliability co-efficient of 0.7 is reported as acceptable for the initial stages of research.[33] To demonstrate the existence of an underlying self-determination continuum[21] and establish construct validity, correlations among the subscales were calculated. If a simplex pattern exists, correlations will be higher between those subscales which are in close proximity to each other along the continuum. In order to establish convergent validity, data from the Pharm-S was compared to data generated by the previously validated MCPIS-9. Responses collected from the MCPIS-9 items were averaged and this value used to explore a possible relationship with the Pharm-S. This was achieved using SPSS to calculate Pearson's correlation coefficient, r, after removal of outliers.

5.4 Results

5.4.1 Face validity

The face validation study involving ten undergraduate students from across the program, confirmed readability and comprehension of the Pharm-S. A test-retest study (one week) resulted in high indications of temporal stability (mean test-retest correlation of 0.82).

5.4.2 Reliability

The reliability of each subscale was determined by calculating internal consistency using Cronbach's alpha (in brackets Table 5-1) with results varying from 0.66 to 0.80. For the two-item sub-scales, a Spearman-Brown coefficient was calculated for internal consistency.[32] The external subscale had a reliability score of 0.66, just below the recommended cut-off of 0.7,[33] while the intrinsic subscale exhibited the highest reliability of 0.80. Table 5-1 also reports mean and standard deviations of each subscale.

5.4.3 Construct validity

To establish construct validity, relationship patterns between and amongst theoretically related structures were explored. This was achieved by examining correlations between the motivation regulator types. Factor analysis was also used to reveal any underlying theoretical structure within the data. Correlations between subscales were calculated to test

for the presence of a simplex pattern. In a simplex structure those variables which are more conceptually similar have higher correlation values. Thus, ordering the motivation regulators, as described by SDT, should reveal higher correlation values between adjacent variables.

Table 5-1 Correlations, means (M), standard deviations (SD) and reliability scores for each motivation regulatory style in the Pharm-S survey

Scale	Intrinsic	Integrated	Identified	Introjected	External	Amotivated	M	SD
Intrinsic	(0.80)						3.81	0.88
Integrated	0.575**	(0.65)					3.64	0.90
Identified	0.598**	0.607**	(0.71)				3.70	0.97
Introjected	0.372**	0.382**	0.392**	(0.70)			2.46	0.94
External	0.253**	0.128*	0.221**	0.482**	(0.67)		2.46	0.83
Amotivated	-0.170**	-0.167**	-0.040**	0.223**	0.418**	(0.79)	1.85	0.79

Note: n=327. Standardised Cronbach's alpha in parentheses. *p < 0.05(2-tailed). **p < 0.01(2-tailed).

5.4.4 Factor analysis

A central part of the validation of the SMS-II tool involved factor analysis, which extracted six factors, thus confirming the presence of the six underlying regulatory styles as described by SDT.[25] Exploratory factor analysis (EFA) was carried out on responses to the Pharm-S (n=308) to determine whether the six factor structure of the SMS-II could be replicated in the Pharm-S. Factor analysis of the Pharm-S using principal component rotation and an examination of the resulting scree plot resulted in a four-factor solution, accounting for 65.7% of the total variance (KMO=0.836, Bartlett's test of sphericity p<0.001). Varimax rotation was used to optimise the item loadings. Items associated with the three lowest autonomy regulators namely amotivation, external regulation and introjected regulation loaded as three separate factors with all factor loadings above 0.7. Items on the upper three subscales on the continuum; identified, integrated and intrinsic, all loaded onto the one factor, making a total of four factors (Table 5-2).

Table 5-2 Factor loadings for exploratory factor analysis with Varimax rotation

Scale (Motivation regulatory styles as identified by Deci and Ryan[1])	1	2	3	4
Intrinsic				
For the satisfaction it gives me to know more about the practice of pharmacy.	0.70			
For the satisfaction of learning about new developments or innovations in pharmacy practice.	0.59			
Because it is interesting to learn how I can improve and develop, keeping up to date with the latest advancements.	0.64			
Integrated				
Because studying pharmacy reflects the essence of whom I am.	0.60			
Because it is consistent with my personal values and principles such as honesty and integrity.	0.76			
Identified				
Because I have chosen pharmacy as a way to develop myself.	0.70			
Because I think it is a good way to develop aspects of myself that I value.	0.82			
Introjected				
Because I would feel bad about myself if I did not study Pharmacy.				0.83
Because if I was not studying pharmacy I would not feel worthwhile.				0.76
External				
Because it allows me to be well regarded by people that I know.			0.70	
For the prestige of being a pharmacist.			0.78	
For the financial rewards being a pharmacist will bring.			0.76	
Amotivated				
I used to have good reasons for studying pharmacy, but now I am asking myself if I should continue.		0.86		
It is not clear to me anymore; I don't really think my place is in pharmacy.		0.86		

The factor loading pattern from the EFA analysis is shown in Table 5-2. Analysis of the initial factor loading and removal of items which loaded onto more than one factor, reduced the total items to 14. The second item in the amotivated sub-group, 'So that others will praise me for what I do' was removed as it did not load along with the other amotivated items, but onto the external regulation subscale. A forced extraction of 5 factors was carried out and this resulted in the loading of identified regulation items as a separate subscale, however this produced cross loadings, so the solution was rejected. Two items loaded onto the subscale amotivation and accounted for 15.9% of the total shared variance in responses. Three items loaded onto the subscale external regulation and accounted for 9.7% of the total shared variance. Two items loaded onto the introjected regulation subscale and accounted for 7.5% of the total shared variance.

5.4.5 Convergent validity.

To explore the possibility of a link between motivation and professional identity, responses on the Pharm-S were compared to an existing instrument for measuring professional identity. Responses on the Pharm-S were condensed into one score and compared to responses on the MCPIS-9. Item composite scores on the Pharm-S were weighted and aggregated according to the RAI (relative autonomy index, also known as the self-determination index) scoring protocols as outlined by Wilson et al[34] to attain a single SDT index score as an indication of overall motivation rating. See formula below.

RAI = ∑([Amotivation x -3] + [External x -2] + [Introjected x -1] + [Identified x 1] + [Integrated x 2] + [Intrinsic x 3])

A correlation analysis was then carried out to explore the association between scores on the Pharm-S and the MCPIS-9, the existing validated tool.[29]

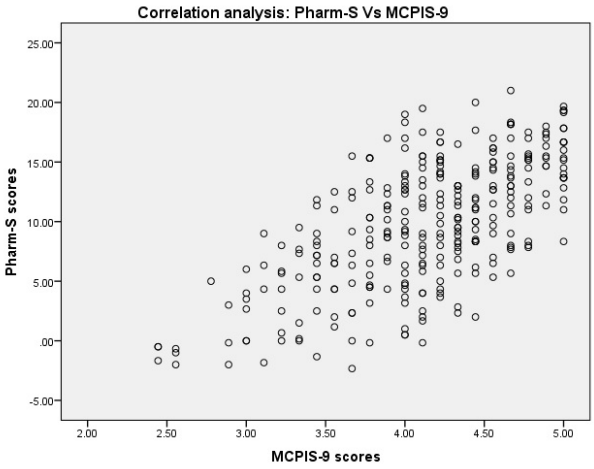

Figure 5-2 Scatter plot for scores on the Pharm-S against scores on the MacLeod Clark Professional Identity Scale (MCPIS-9).

A positive correlation emerged between the two variables, r=0.65, n=327, p<0.01, (2-tailed). A scatterplot in Figure 2 summarises these results.

5.5 Discussion

The Pharm-S is an adaptation of the 18 item, SDT based, SMS-II[25] and is designed to examine the motivation regulatory styles of an undergraduate student choosing to study pharmacy. Findings in this study suggest that the Pharm-S is a valid and reliable tool for the determination of motivation levels in undergraduate pharmacy students. SDT describes a theoretical link between motivation and internalisation (integration with the self) and through correlation analysis this study lends support for a link between motivation regulators and professional identity. Face validity was established for the Pharm-S and a mean test-retest correlation of 0.82 is suggestive of high levels of temporal stability. Reliability analysis reveals a high level of consistency within the subscales, with the analysis reporting acceptable Cronbach alpha values.

Factor analysis results demonstrate the extraction of four of the six theoretical SDT motivation regulatory styles. Amotivated, external and introjected regulatory styles load as three separate factors, distinguishing each as a separate underlying construct. The introjected subscale represents the beginning of the internalisation process towards more self-determined behaviors.[35] The upper three regulatory styles, or subscales, namely identified, integrated and intrinsic did not resolve onto three separate factors, instead loading onto one factor, accounting for 32.6% of the total variance. These three subscales represent motivation states which are characterised by increasing levels of self-determination, culminating in the most self-determined state, intrinsic motivation. This lack of discrimination, however, may be resolved with a larger sample size in future work. In light of this any future interpretations of the data will be limited to the broad regulatory styles; amotivation, external and intrinsic motivation. The SMS-II was validated in two languages, firstly in French with over 500 students and secondly an English version with over 600 students.[25] To accurately reflect population factors MacCallum et al[36] recommend that in the early stages of factor analysis, the largest sample size possible (300 - 500) should be obtained and mean communalities (the portion of variance accounted for by the factors) should be at least 0.7 (mean communalities for this study was 0.62). The Behavioral Regulation in Exercise Questionnaire (BREQ), another sports motivation scale based on SDT, was also reported as lacking discrimination in the highest three motivation regulators in its early versions[25].

Analysis of the correlations between the subscales provide evidence that the Pharm-S reflects the underlying structural characteristics of SDT. Consistent with SDT, correlations are stronger between adjacent subscales (e.g. integrated and identified regulation) than those situated further away along the continuum.[21] As can be seen from Table 5-1, subscales which are closer together were more positively associated than those further apart, which were negatively associated. For example intrinsic regulation is positively associated with identified regulation ($r=0.598$, $p<0.01$), and negatively correlated to amotivation ($r = -0.17$, $p<0.01$). These results lend support to the existence of an underlying simplex structure[37], confirming the presence of a continuum of motivation regulator subscales as achieved by Pelletier et al.[25]

Exploring a possible link between motivation and professional identity, a correlation analysis between Pharm-S aggregate scores and MCPIS-9 scores, reveals a moderate positive correlation.[38] This indicates that increases in scores on the Pharm-S scale correlate with increases in scores on the validated professional identity scale tool, MCPIS-9. This suggests a possible relationship between motivation levels and levels of professional identity. This supports the hypothesis that a student with high levels of motivation to study pharmacy would also score higher on the professional identity scale. This is reflective of the mechanism described by SDT, whereby an individual transitioning to higher levels of motivation, simultaneously triggers internalisation or the 'taking in' to ultimately become part of one's self.[21,23,35]

In the area of professional education, research has traditionally focused on defining professionalism, rather than on the mechanism by which the professional develops. The importance of professional identity is a relatively new area of interest in professional education,[18] and as a result there is a lack of research into the formation of professional identity.[13] This study uses a long established theory of motivation, which is rooted in human psychology, to shed light on the area of professional identity formation and further inform those at the coal face of professional education design.

Generalisability of findings in this study was reduced as all data were collected at a single teaching institution. Extending the study to include students undertaking a BPharm at other Australian universities would satisfy the need for the largest sample size, recommended in the early stages of factor analysis.[36]

5.6 Conclusion

This study assessed the validity of the Pharm-S (Pharmacy Motivation Scale), a survey tool adapted from the SDT based SMS-II. Findings indicate that the Pharm-S reflects the underlying SDT structure with four of the six types of motivation regulators being revealed through factor analysis. Support for the structure is also confirmed by high loadings and high reliabilities in each of the subscales. Correlations amongst the subscales confirm a simplex pattern, thus providing confirmation for the underlying SDT continuum.[21] A moderate positive correlation, found between the responses on the Pharm-S and the MCPIS-9, provided evidence that, as stated by SDT, increased levels of motivation are indicative of increased integration into the self, or the emergence of professional identity.

In summary, these findings provide support for the structural validity and internal consistency of the Pharm-S, confirming its reliability for the determination of motivation types amongst pharmacy students. The link between levels of motivation and professional identity highlighted in this study, suggests that this tool may also be used to monitor the progress of professional identity formation at an undergraduate level.

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6 CHAPTER 6 EFFECT OF A PROFESSIONAL IDENTITY PROGRAM ON STUDENT MOTIVATION AND IDENTITY

This chapter is a report on the quantitative assessment of the impact of the professional identity program on student motivation and identity formation. It is the fourth publication from this study and was published in the *American Journal of Pharmaceutical Education*.

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Authors' contributions

Martina Mylrea conducted the study, collected the data, analysed the data and prepared the manuscript. Beverley D Glass critically reviewed and revised the manuscript prior to submission. Tarun Sen Gupta provided tertiary health education expertise.

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Tarun Sen Gupta

6.1 Abstract

Objective*:* The purpose of this study was to design and evaluate a Professional Identity Program (PIP), based on Self-determination theory (SDT), for commencing pharmacy students.

Methods: The PIP, featuring autonomy-supportive teaching approaches, was delivered as ten workshops, integrated into the existing pharmacy course structure over four, thirteen-week semesters (2 years). The program was evaluated using a student satisfaction survey and two previously validated tools, measuring professional identity (MCPIS-9) and motivation to study pharmacy (Pharm-S). Non-parametric statistical techniques were used to analyse group scores before and after the PIP. Baseline data were collected by surveying a cohort of commencing students, who would not receive the PIP.

Results: Scores on the motivation-based tool (Pharm-S) increased between the end of the first and second year of participation in the PIP, indicating an increase in student autonomy levels. There was however no change in scores on the professional identity measure (MCPIS-9). This suggests that while student perceived professional identity remains unchanged, the underlying motivation regulators governing identity formation are transitioning to a more autonomous state, which is increasingly intrinsic in nature.

Conclusion: Students responded positively to the introduction of the PIP into their program of study. They valued opportunities to engage in activities and discussions relating to professional development and identity formation. The use of SDT-based instruction in professional identity education, facilitated increased autonomy levels in pharmacy students, with the potential to impact positively on their individual professional identity development and future professional practice.

6.2 Introduction

Personal and professional development is described as an educational outcome essential to the contemporary practice of pharmacy and outlined in "Standards 2016",[1] published by the Accreditation Council for Pharmacy Education (ACPE). Standard 4 requires that students acquire core knowledge and skills, as well as attitudes, values and behaviors, which exemplify the practice of pharmacy. The ability to demonstrate professionalism is identified as fundamental, this being predicated by the capacity for self-awareness as a mechanism to promote professional growth.[1] Recently it has been reported that the basis of student professionalism should be the development of professional identity.[2] In 2014 a professional identity formation (PIF) task force was established by the American Association of Colleges of Pharmacy, Council of Deans (AACP-COD).[3] The task force released a report which defined PIF as being "the transformative process of identifying and internalising the ways of being and relating within a professional role". The report also made recommendations for best practices in the development of pharmacy student professional identity, by creating opportunities within and beyond the established curriculum.

Jarvis-Selinger et al[4] explain that identity is formed at both the individual (psychological) and at the collective level, where the person is socialised into roles and relationships in the work setting. Of particular interest to this study is the observation by Skorikov & Vondracek, that human motivation also has a role to play professional identity formation: '…a professional identity is represented by a "complex structure of meanings in which the individual links his or her motivation and competencies with acceptable career roles'[5] Research into pharmacy student professional identity development has largely focused on the collective level, as it reports on the importance of role models, interactions with practicing professionals and experiential education.[6-8] However, Dall'Alba[9] highlights the importance of the individual level and describes the importance of developing a sense of who the student is becoming, through an ontological, as well as an epistemological approach to teaching aspiring professionals. Such an approach should create opportunities for students to think, act and feel like a professional.[2,9]

There is limited research considering possible pedagogical approaches to PIF in pharmacy education.[10,11] There is agreement amongst medical, pharmacy and nursing education that concepts around professionalism and professional identity should be introduced in the early stages of a program of study.[11-13] Van Huyssteen and Bheekie[14] used the medium of reflective writing to develop professional identity in first-year pharmacy students, resulting in an improved sense of belonging to the pharmacy profession. Johnson and Chauvin[10] state

that deliberate structuring of learning opportunities can promote PIF. Noble et al[11] state that there are many opportunities within the pharmacy curriculum for PIF, identifying it as a significant factor in the successful transition from university to the workplace.[11] As Adams et al[15] observe, the challenge is to create or find a framework that will develop an understanding of what it means to be a practicing professional, and to design educational programs that prepare aspiring professionals for the challenges of professional practice.

There is therefore a need to investigate a theoretical approach to developing individual professional identity in pharmacy students.[16] Research with a focus on pedagogies, which support the individual (psychological) level is lacking, therefore a framework that is informed by an understanding of the mechanism behind individual identity development is needed.[16] To address this issue, Mylrea et al[17] have proposed Deci and Ryan's[18,19] self-determination theory (SDT) as a relevant framework upon which to base pedagogical approaches to PIF.

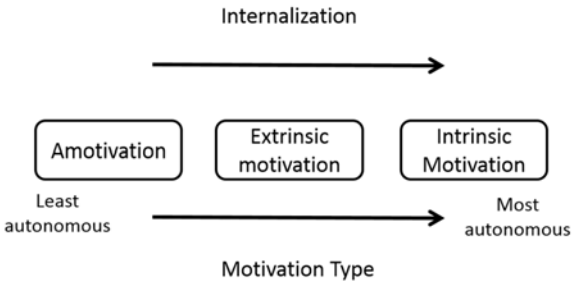

Figure 6-1 Diagrammatic representation of motivation types described by Self-determination Theory. Adapted from Ryan and Deci.[19]

SDT explains identity formation as a function of self-motivation (absent, externally or intrinsically driven). In this model, identity is formed through the process of internalisation, this being the integration of the values and culture of an activity, to become part of one's self (Fig 6-1). The highly regarded theory states that an intrinsically motivated individual will exhibit highly self-directed (autonomous) behaviors, with the activity or pursuit becoming part of their individual identity.[20,21] SDT states that an individual will internalise a role or activity, and form an identity, if the student is supported in three basic psychological needs; competence, relatedness and autonomy.

The purpose of this study was to design a professional identity program (PIP) which would facilitate the formation of pharmacy student professional identity, using SDT to underpin instructional design.[17] The program employed autonomy-supportive teaching[22] techniques and was designed to provide students in their first year of study with the opportunity to begin to think, act and feel like a pharmacist. This study also evaluated the PIP and tested the

hypothesis that the introduction of the PIP across the first two years of a pharmacy program would increase student professional identity and autonomy.

6.3 Methods

To address the early professional development of pharmacy students, this study focused on students in their first (2015) and subsequent second year (2016) of the Bachelor of Pharmacy (BPharm) at James Cook University (JCU). The BPharm is an undergraduate, four year degree program, which after completion of an internship year, meets the requirements for registration as a pharmacist in Australia. The program adopts a modern integrated curriculum, whereby body systems, associated disease states and relevant therapeutics are taught concurrently, thus providing opportunity for the learners to make meaningful connections between the scientific basis of therapeutics and the practice of pharmacy. Students in their first year of study undertake a combination of science-based subjects (e.g. biochemistry) and pharmacy-specific subjects, the latter being designed to introduce students to the professional aspects of pharmacy practice. The students were given a brief presentation about the study, provided with an information sheet, which outlined the objectives of the study and at times appropriate to the study, were sent an email containing the survey link, calling for volunteers to complete the survey. Approval was sought and granted from the JCU Human Ethics Committee (HREC#:5445).

6.3.1 Design

An SDT-based Professional Identity Program (PIP) was designed for pharmacy students in their first and subsequent second year of the BPharm. Workshop sessions were developed with the aim of supporting student competence, relatedness and autonomy and integrated into the compulsory pharmacy-specific subjects, each semester for the first two years of study. Strategies for supporting the three psychological needs were adapted from work by Kusurkar et al[22] who previously applied SDT to medical education, an approach later formalised by Orsini et al[23] (Table 6-1).

Table 6-1 Strategies used in the PIP workshops for addressing SDT's psychological needs.

Need	Competence	Relatedness	Autonomy
Strategies	• Providing challenges (compounding scenario task) • Timely and constructive feedback • Positive reinforcement	• Respect and value for student contribution • Collaborative learning in group discussions with practicing pharmacists • Activities related to the work environment (real-life case studies) • Group based laboratory project	• Encouraging opinion • Student-directed laboratory project • Choice of reflective topics • Active participation • Relevant meaningful activity

The PIP was run from the beginning of semester 1, 2015 to the end of semester 2, 2016 (four, 13 week semesters in total). As students only embark on their first professional placement in their third year of study, this program was designed to provide early opportunities to be exposed to and engage with aspects of the profession of pharmacy, while building competence, relatedness and autonomy. Building on previous research on professional development,[6,7] the PIP consisted of ten workshops that featured interaction with practicing pharmacists, group discussions, reflective writing and practice related activities such as compounding and counselling (Table 6-2).

Table 6-2 Professional Identity Program Workshops

Workshop		Title	Description
1	L1:Sem 1	Introduction: Professionalism and professional identity	Definitions of professionalism USA, Australia Code of Ethics 2011, Code of Conduct 2014
2	L1:Sem 1	Pharmacist identities	Explore Multiple identities of the Pharmacist[118]
3	L1:Sem 1	Professional identity development	Group discussions: The rural pharmacist
4	L1:Sem 2	Exploring the role of the pharmacist	The counsellor: video analysis The medicine maker: APF and compounding activity
5	L1:Sem 2	A pharmacist's oath	Group discussions: creation of an oath
6	L1:Sem 2	White Coat Ceremony	Welcome to the profession, oath and white coat
7	L2:Sem1	My professional identity	Extended reflective activity: PebblePad+ platform
8	L2:Sem1	Compounding group project	Compounding scenario activity (2 x 3hrs)
9-10	L2:Sem2	Emotional intelligence training	Group activities and discussion (2 x 2hrs)

L1= First year, L2=Second year, Sem=Semester

The PIP commenced with sessions which featured group discussions around professionalism and professional identity, encouraging student participation and input. The intention was to initiate an early dialogue around the very attributes which will define their daily professional activities. Workshop 2 was dedicated to the concept of pharmacist identities, based on recent research by Elvey et al,[24] and used an interactive group activity to explore the multiple roles of the pharmacist. The program was delivered using autonomy-supportive teaching techniques[22], and as indicated in the CAPE educational outcomes, also incorporated reflective activity and self-awareness training. As the role of reflective activity in professional development is well documented,[25-27] students were asked to reflect on their professional development, given a suite of suggested topics or a self-nominated topic, over the course of a 13 week semester (workshop 7). Student reflections were created and submitted using an online e-portfolio system, PebblePad^{+} (Pebble Learning, University of Wolverhampton, UK) in the form of an online blog. The students received on-line individual feedback on their blog entries via ATLAS^{TM}, the assessment portal in PebblePad^{+}. Development of self-awareness was achieved through rudimentary Emotional Intelligence (EI) training as the final workshop (workshop 9) in November of the second year of the PIP, with a specific focus on the role of EI in the pharmacy workplace.

6.3.2 Evaluation

Two measures were used to evaluate the PIP: 1) a student satisfaction survey (paper-based), designed to evaluate student perceptions of the PIP and 2) a professional identity survey (online) incorporating two previously validated professional identity/motivation tools (MCPIS-9[28] and the Pharm-S[29]). The first survey was a program evaluation tool and was administered twelve months after the commencement of the PIP. Students from the first year cohort were informed of the project through a briefing session and an information sheet. They were invited to complete the survey to ascertain their perceptions about the program content and delivery.

The second survey, a professional identity survey, consisted of two components; 1)The MCPIS-9, a professional identity instrument validated by Worthington et al[28]. The instrument consisted of 9-items, which asked the students to indicate how connected they feel to the pharmacy profession. Students were asked to indicate their position on statements such as "Being a member of the pharmacy profession is important to me", by indicating their level of agreement on a five–point, Likert-type scale, where 1=strongly disagree to 5=strongly agree); 2) The second survey tool used was the Pharm-S[29], a 14-item, previously validated tool based on SDT, by Mylrea et al.[29] Adapted from a sports motivation scale, the Pharm-S is designed to assess motivation regulators as they relate to what drives students to pursue the profession of pharmacy. Details of the design and validation of the Pharm-S can be found in an earlier paper.[29] Responses on the Pharm-S were recorded on a 5-point Likert-type scale ranging from 1=does not correspond at all, to 5=completely corresponds; Questions which related to demographic aspects of the participants were also included. First year students commencing the course in 2014, who would not receive professional identity instruction, were surveyed at 0, 12 and 24 months to provide baseline data, and are referred to as non-PIP students. Their responses were used for comparison with the next intake of students in 2015, who would receive the PIP for the following two years and also surveyed at 0, 12 and 24 months. Responses on the MCPIS-9 items and the Pharm-S items were collated and summarised. Response rates were calculated as a percentage of the total number of students in the relevant cohort. An arithmetic mean was calculated for the MCPIS-9 items. Scores on the Pharm-S were aggregated according to a weighted formula as prescribed by the Relative Autonomy Index (RAI)[30]; Participation in the survey was voluntary and anonymity was assured. The survey was administered using Survey Monkey® (Survey Monkey, Palo Alto, CA) with 'consent to participate' built into the online introduction to the survey instrument.

Data analysis was carried out using Statistical Package for the Social Sciences software (Version 23.0, SPSS Inc, Chicago, USA). Descriptive statistical techniques were used to analyse demographic data. The Kolmogorov-Smirnov test confirmed that the data were not normally distributed, so non-parametric analysis was undertaken. Group differences were therefore explored using the Wilcoxon signed-rank test for pre and post PIP scores and Mann-Whitney U tests were used for the unrelated groups. A significance level, $\alpha=0.05$ was used to determine statistical significance. Data were also screened for outliers and missing values.

6.4 Results

The program evaluation survey asked the students to respond to questions relating to the content and delivery of the PIP. There were 44 respondents (88% response rate), of which 18 were male and 26 were female, with a mean age of 20 yrs, SD=4.2; range= 17-35yrs. Results from this survey indicated that 100% of the respondents felt that they gained a greater understanding of the importance of professionalism, 91% felt that they had a greater understanding of the role of the pharmacist and 84% of students felt that the PI sessions improved their sense of professional identity. Overall the responses indicated that the students found value in the PIP sessions and welcomed the opportunity to discuss professionalism during their first year of study.

The professional identity survey consisted of a series of demographic questions, and the combined items from the MCPIS-9[28], the Pharm-S.[29] Demographic results from the two first-year groups (2014 and 2015) are summarised in Table 6-3 and the scores on the identity/motivation tools in Table 6-4. In Table 6-3 the data represent two successive years of pharmacy student intake into the first year of the BPharm program. The students enrolled in 2015 would receive the PIP program for the following two years, while the students enrolled in 2014 would not receive the PIP program (non-PIP), their responses being used to provide baseline data for the purposes of comparison. Response rates for this survey were 72% and 88% for 2014 and 2015 respectively. The data show a disproportionate number of females in the 2014 group of respondents, reflecting the higher proportion of females enrolled in 2014 (72%).

Table 6-3 Demographics of the first year BPharm cohort

Characteristic	First year intake (2014)	First year intake (2015)
Age, mean(SD) yrs	20.1 (5.5)	20.0 (5.8)
Sex: female, %	87.5	55.3
Pharmacy was the course of first choice: yes, %	60	62
Worked or works in practice: yes, %	32.5	21.3
Responses (n)	40	45

For the 2014 (non-PIP) and 2015 (PIP) student intake, survey responses were collected using the professional identity survey at 0, 12 and 24 months after enrolment in the BPharm program. Considering firstly, scores on the MCPIS-9 measure, it can be seen from Table 6-4 that the students entering the course (Time=0) scored highly on the MCPIS-9, with an average score of 4.1. It is clear from the *p* values in Table 6-4 that MCPIS-9 scores for both PIP participants and non-participants did not significantly change across the two year testing period.

Table 6-4 MCPIS-9 and Pharm-S mean (SD), at 0, 12 and 24 Months for Participating (PIP) and Non-Participating (non-PIP) Students in the Professional Identity Program (PIP)

Time (mths)	Response rates[a] PIP n (%)	Response rates[a] non-PIP n (%)	MCPIS-9[b] mean (SD) PIP	MCPIS-9[b] mean (SD) Non-PIP	*p* value PIP vs non-PIP	Pharm-S[c] mean (SD) PIP	Pharm-S[c] mean (SD) Non-PIP	*p* value PIP vs non-PIP
0	45(88)	44(72)	4.0(0.55)	4.1(0.65)	.45	10.2(5.1)	9.6(5.3)	.58
12	48(94)	33(57)	4.0(0.63)	4.1(0.64)	.68	9.0(6.7)	9.0(5.6)	.93
24	33(87)	39(71)	4.2(0.59)	4.2(0.59)	.87	12.2(4.7)	8.8(6.0)	.01

Significance was determined by the Mann-Whitney U test
[a] Survey participation was voluntary so response rates (in parenthesis) varied at each time interval
[b] MCIPS-9 (MacLeod Clark Professional Identity Scale)[28]
[c] Pharm-S[35] (Pharmacy Motivation Scale) scores aggregated using a weighted average as prescribed by the Relative Autonomy Index (RAI)[30]

The Pharm-S scores were also compared for those students who had received (PIP) and not received the PIP (non-PIP). A Mann-Whitney U test was used to reveal any significant differences. This analysis revealed that after 24 months of participation in the PIP, the students scored significantly higher on the Pharm-S measure than students who did not receive the PIP (U=421, Z=-2.5, p=.012) (Table 6-4). This indicates that there was an increase in the degree of autonomy in the participating students, compared to the non-participating students.

The Wilcoxon signed-rank test was used to determine if there were any changes in Pharm-S scores amongst the student group who received the PIP (Table 6-5). No significant differences were detected in the survey scores after the first year of study (T=0 to T=12). However, a significant increase in Pharm-S scores occurred between the 12 and the 24 month mark after commencement of the PIP. Analysis revealed that the median post-test ranks, Mdn=12.8 (T=24), were statistically significantly higher than the median pre-test ranks, Mdn=9.0 (T=12), Z=-2.3, p=.02 (Table 6-5). This indicates that during their second year of study, student participants in the PIP showed a significant increase in levels of autonomy associated with the profession of pharmacy.

Table 6-5 Pharm-S Scores at 0, 12 and 24 months for participating students (PIP) in the professional identity program (PIP).

	Pharm-S[a] mean (SD)	
Time (mths)	**PIP**	***p* value**
0	10.2(5.1)	
		.06
12	9.0(6.7)	
		.02
24	12.2(4.7)	

Significance was determined by the Wilcoxon signed-rank test
[a]Scores on the Pharm-S were aggregated using a weighted average as prescribed by the Relative Autonomy Index (RAI)[30]. significance level, two-tailed

A breakdown of the overall Pharm-S score into the three motivation types discussed earlier; amotivation, extrinsic and intrinsic motivation, reveals changes consistent with increasing levels of autonomy across the two years in which the PIP was run. A visual representation of this breakdown across 24 months is shown in Figure 6-2. This reveals a drop in amotivation scores (indicating a reduction in the occurrence of amotivation) and an increase in the scores associated with both extrinsic and intrinsic motivation type. Both extrinsic and intrinsic motivation types are associated with an increased levels of autonomy, with the latter

representing the highest levels of autonomy or self-direction. A shift from extrinsic to intrinsic motivation represents a move from externally controlling factors such as money or parental expectations to personal satisfaction, interest and enjoyment.[19]

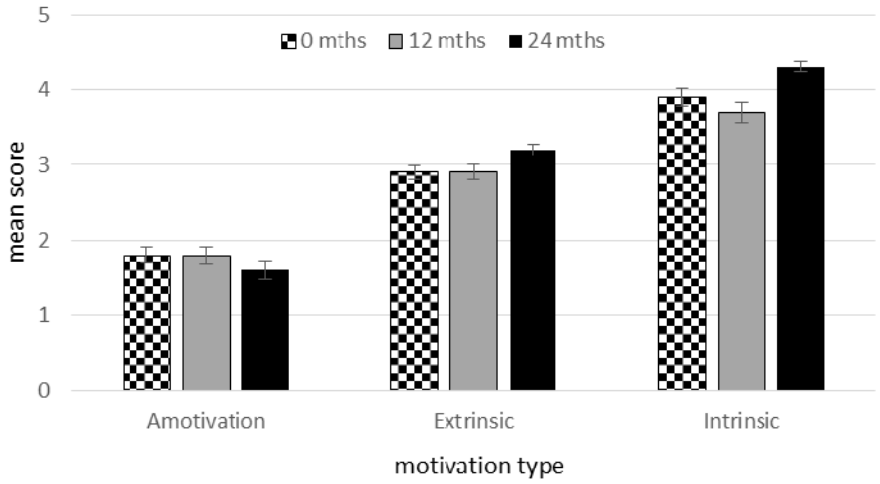

Figure 6-2 Pharm-S motivation style scores (mean, SE) of first year pharmacy students in a professional identity program at 0 (▪), 12 (▪) and 24 (■) months.

The intrinsic motivation type shows a significant increase between 12 and 24 month, (Z=-3.3, *p*=.001), and similarly for the extrinsic motivation type (Z=-2.1, *p*=.03). With a continued focus on supporting student competence, relatedness and autonomy, the trend could be expected to continue with a drop in amotivation levels and the development of a motivation type, which is increasingly intrinsic in nature.

6.5 Discussion

First year students participating in a professional identity program during the first 24 months of their study program, reacted positively to its early inclusion in the BPharm degree. The majority of students welcomed the opportunity to discuss the professional practice of pharmacy as part of their studies and felt that the program increased their understanding of professionalism and professional identity. Research has recommended encouraging early discussion around the role of the pharmacist, as a strategy for facilitating student professional identity development.[11]

The PIP was evaluated for its effect on the professional identity and motivation of the participating students. Two validated survey instruments were used to detect changes in

student professional identity and motivation types, over a two year period. Data from the MCPIS-9, revealed high levels of perceived professional identity with no significant change in the scores during the two years of the study, irrespective of whether the students received the PIP training or not. This suggests that, according to the MCPIS-9 measure, first year students in both the 2014 and 2015 intake, all commenced the course with high levels of perceived professional identity which did not change significantly. Adams et al[31] reported similar findings in their study of ten different health professions, including pharmacy, using the MCPIS-9 measure. The authors suggest that strong professional identity in new students is a result of their acceptance and subsequent enrolment into the course. The MCPIS-9 is a single factor instrument, designed to explore whether participants positively identify with the profession, in this case pharmacy.[28] The narrow scope in this instrument does not however allow the provision of an insight into the development of professional identity, an aspect which the Pharm-S sought to address.

The Pharm-S tool examined motivation types as they related to the profession of pharmacy. After 24 months of participation in the PIP, data analysis revealed a significant increase in Pharm-S scores. This indicates that during their second year of study, student participants showed a significant increase in levels of autonomy (self-determination) associated with the profession of pharmacy, when compared to non-participating students (non-PIP). This illustrates the long-term approach required for professional development, with research recommending that opportunities are created for students to grow, mature and internalise their sense of professional identity over time.[7,32] The Autonomy-supportive teaching techniques[22] employed in the delivery of the PIP have been reported to increase student autonomy, by shifting focus from the instructor to the student[33] and increasing motivation to learn.[23,34] It has been reported that students felt more self-determined and competent when teachers listened to their perspectives, encouraged conversation and provided opportunities for the students to work independently.[19,22] Autonomy-supportive teaching has also been associated with higher rates of retention and greater perceptions of competence.[35]

The significant increase in Pharm-S scores indicated that the motivation regulators (intrinsic or extrinsic) underpinning identity formation, had changed over time to become more intrinsic in nature, presumably as a result of program support for their competence, relatedness and autonomy. Luyckx et al[21] have reported evidence of positive associations between basic psychological needs satisfaction and identity development in high school and college students. With such support, students are more likely to exhibit autonomous or self-

determined behaviors, with the intrinsically motivated individual exhibiting the highest state of autonomy. This individual is motivated by enjoyment, satisfaction and an inherent interest in the activity.[19]

Orsini et al[36] have also identified the importance of an autonomy-supportive approach in clinical teaching with benefits for professional practice. The authors explained that this technique represents a 'human-centered' approach to teaching, which equips students with the skills to offer autonomy-support to patients, thus improving healthcare delivery.[23] This is because students who are taught in an autonomy-supportive manner, become practitioners who are better positioned to provide care which facilitates patient autonomy.[19] This is achieved through valuing patient perspectives, providing information, offering choice and encouraging self-direction,[19,23] leading to better health behaviors and subsequent improved health outcomes for patients.[19,37] This is extremely relevant for pharmacists adopting patient-centered practices and striving to improve medication adherence, which delivers better health outcomes.[19]

Limitations

There are some limitations to the present study. Firstly data collection was carried out in a single pharmacy program, which limited the available sample size. Secondly, the data collection instruments relied on self-report measures, however this is seen as the most appropriate approach in identity research.[21] Lastly, the main investigator had an instructor role within program, however students were advised that the objective of the study was to ascertain their opinions and perspectives regarding the professional identity program only. The program design is such that it could be integrated into pharmacy programs in other schools and colleges, thus expanding the future opportunity for larger samples sizes, capturing a greater diversity in student population.

6.6 Conclusion

This novel professional identity program for pharmacy students, represents a theory-based approach to early professional identity development. Pedagogical approaches, informed by SDT principles, focused on providing support for the development of student competence, relatedness and autonomy. The program, commencing in first year and utilising autonomy-supportive teaching techniques, presents an early foundation for professional identity

development. After two years of participation in the PIP, a validated SDT-based survey instrument revealed an increase in levels of autonomy in participating students, this having the potential to translate through to improved health outcomes for future patients. The study supports the early implementation of professional identity development strategies as being essential to allow for adequate development and maturation, in preparation for successful transition to the professional workplace.

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7 CHAPTER 7 FOCUS GROUP: STUDENT PERCEPTIONS OF PROFESSIONAL EDUCATION

This chapter is a qualitative exploration of student experiences of their development as professionals during undergraduate study. It is the fifth publication in this study, being published in *Pharmacy Education*.

Mylrea MF, Sen Gupta TS, Glass BD. Commencing and graduating pharmacy students' perceptions of their professional development during undergraduate study. Pharmacy Education. Accepted for publication June 2018

Authors' contributions

Martina Mylrea conducted the focus groups, transcribed the data, conducted a thematic analysis and prepared the manuscript. Beverley D Glass critically reviewed and revised the manuscript prior to submission. Tarun Sen Gupta provided tertiary health education expertise.

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7.1 Abstract

Objective: Professional development is key to professional conduct and behaviour in the practice. The aim of this study was to ascertain the factors affecting professional development of commencing and graduating pharmacy students.

Methods: Student volunteers participated in two focus groups for an in-depth exploration of their opinions and experiences which impacted their professional development. Focus group transcripts were analysed for emergent themes.

Results: Three common themes were revealed by both commencing and graduating students, namely pharmacist-educators, curriculum and placement/part-time work, were identified as contributing positively to student professional development.

Conclusions: Although factors influencing professional development are similar, differences do occur in the prioritisation and emphasis placed on these factors by the two student groups. Pharmacist-educators are pivotal in student professional development, however the nature of the interactions between student and educator increases in complexity during the degree program. Autonomy-supportive teaching provides a potential an instructional framework to support student professional development needs.

7.2 Introduction

Professional conduct and behaviour are cornerstones of the practice of pharmacy. This is evidenced by the documentation produced by the UK General Pharmaceutical Council (GPhC), in their standards for pharmacy professionals, [1] in the US 'Standards 2016', [2] published by the Accreditation Council for Pharmacy Education (ACPE) and in the Australian Professional Practice Standards(PPS).[3] The responsibility for educating pharmacy students about professionalism has fallen largely to teaching academics [4] and for decades the approaches to teaching and learning of these professional characteristics has been debated. A large study exploring effective practices in professional education was conducted by Schafheutle *et al* in their analysis of the curricula of three UK Schools of Pharmacy.[5] The study included interviews with staff and students, examination of curriculum materials and observations of professional classes. Findings revealed that strategies including practical classes, role plays, teaching through practice-related examples and pharmacist-educators (academic staff, tutors or guest speakers, who are pharmacists) were effective in socialising students into the profession.

The view of professional education is however changing. Recently there has been a shift from a focus on the development of professional attitudes, values and behaviours, to an acknowledgement of the role played by professional identity in student professional development. This has been largely driven by research in medical education[6,7] where it has been reported that student professionalism should be based on the development of professional identity. Appropriate and effective teaching strategies are thus required to support the formation of professional identity.[6] In a review of an Australian pharmacy program, Noble *et al.* observed that there are opportunities for identity development in the curriculum, but that there is much work to be done in this area.[8]

With a view to gaining a better understanding of the student experience of professional education, including professional identity formation, and subsequently inform educational design, the aim of this study was to utilise focus group methodology to investigate student perceptions of their professional development in an Australian school of pharmacy. Possible implications for pedagogical approaches to professional education will then be considered.

7.3 Methods

7.3.1 Participant selection and recruitment

To investigate the professional development of undergraduate pharmacy students, this study focused on students in their first (commencing) and final year (graduating) of the BPharm at James Cook University (JCU). The BPharm is an undergraduate, four year degree program,

which adopts a modern integrated curriculum, whereby body systems, associated disease states and relevant therapeutics are taught concurrently, thus providing opportunity for the learners to make meaningful connections between the scientific basis of therapeutics and the practice of pharmacy. Students in their first year of study undertake a combination of science-based subjects (e.g. biochemistry and physiology) and pharmacy-specific subjects, the latter being designed to introduce students to the professional aspects of pharmacy practice. The first two years of the program have a strong scientific emphasis, with the introduction of integrated clinical material occurring at the commencement of the second year. The third and fourth years of study focus heavily on the clinical and therapeutic management of disease states as well as a total of 600 hours of experiential placements in community and hospital settings. The students were provided with an information sheet, which outlined the objectives of the study and at appropriate times, the students were invited to volunteer to participate in a focus group. Approval was sought and granted from the James Cook University (JCU) Human Ethics Committee (HREC#:7083).

7.3.2 Conduct of the focus group

For purposes of comparison, focus group discussions were conducted with commencing students (CS) and graduating students (GS). This allowed for an examination of possible shifts in ideas, experiences preferences around factors influencing student professional development, from the first to the fourth and final year of study. Focus group participants were invited to volunteer and supplied with a consent form, which included consent for the proceedings to be audio recorded. The focus group was scheduled and was run for approximately one hour. Participants were asked to provide their responses to a selection of questions relating to professionalism and professional identity based on focus groups previously conducted by Schafheutle et al[5] (Table 7-1). Initial questions focused on professionalism in general, including factors, which the participants felt affected professional development. The students were then asked to consider which aspects of the course taught them about professionalism and if there any were any experiences which negatively impacted their sense of professionalism.

Table 7-1 Focus group questions asked of BPharm students at the end of the first year of study.

1. What do you understand by the term professionalism in pharmacy?
2. Has your understanding of professionalism changed since you commenced the BPharm at JCU?
3. What influences you most as you become part of the pharmacy profession?
4. Where do your professional attitudes, values and behaviors come from?
5. Which parts of the BPharm course teaches you about professionalism.
6. What are the challenges in maintaining a high level of professionalism?
7. Do you think there are outside factors which affect your professionalism?
8. What do you think is the difference between professionalism and professional identity?
9. How do you think your professional identity has changed/developed

7.3.3 Analysis

Focus group proceedings were audio-recorded and transcribed. The transcripts were analysed manually, using an analytical framework that identified key concepts such as ideas, experiences and preferences of the participants.[9] The coding of the data and subsequent organisation into categories or themes[10] was carried out by MM and verified by BG.

7.4 Results

7.4.1 Focus group I (FGI): Commencing students

Nine participants volunteered to take part in the commencing student (CS) focus group (F=5, M=4), representing 20% of the enrolled cohort. Participant ideas, experiences and preferences regarding factors influencing professional development, were manually coded and organised into four distinct themes. The themes were identified as 1) pharmacist-educators 2) curriculum 3) placement/part-time work and 4) student networks. Selected quotes from participants are referenced according to focus group number (FGI or FGII), participant number (p1 to p9) and gender (M or F).

Pharmacist educators: There was unanimous agreement from the students that the most influential factor on their professional development, in their first year of the BPharm, was the opportunity to be exposed to pharmacist-educators, who have had "real world" experience in the various areas such as the pharmaceutical industry, military, hospital and community pharmacy. "*I think having [tutor name] in the practical classes was really helpful because she*

could give some advice about what it's like when you're in practice, working for real." (FGI-p1-F). During this early stage of the degree pathway, where there is limited experiential placement in the practice, this contact with the profession was highly valued by the students. The CS particularly noted that the observation of professional behavior by academic staff, encouraged them also to behave professionally.

***Curriculum**:* The CS were all in agreement that they welcomed the opportunity to discuss issues around professionalism in their first year of study. The participants saw it as essential for preparation for placement in their third year of study and also for future employment. They also commented on the value of having professional expectations communicated early in the degree: *"Lectures about conduct and professional ethics, sets the tone and what is expected of you"* (FGI-p3-M). Participants also agreed that they found value in the compounding practical classes, because they felt the sessions were relevant to the practice and *"made me feel like a pharmacist"* (FGI-p2-F). Those participants, who had previously completed a science qualification, also valued opportunities to apply their knowledge in JCU's integrated curriculum, and considered these experiences to be very important to their development as a professional.

A white coat ceremony at the end of the first year of study was also introduced into the BPharm as a means of facilitating student professional identity, following the model adopted by a large number of pharmacy schools and colleges in the US [11]. There is increasing uptake of this practice in Australian Pharmacy Schools, the JCU ceremony being supported by the Pharmaceutical Society of Australia (PSA). Students were unanimously positive about the inclusion of the white coat ceremony and noted that they also appreciated the role they had played in the generation of the oath, which formed part of the ceremony. The students felt that the white coat ceremony had a positive effect on their sense of professionalism: *"I think getting the white coat has definitely helped with that because it's like "Yeah, this feels like -this feels real"* (FGI-p6-M).

Placement/part-time work: All participants were in agreement regarding the positive effect of direct contact with pharmacists in the workplace setting. They all stated that they would like more placement experiences in addition to the 2 x 2hrs of observational placement in their first year. The value of having a part-time job in a pharmacy was also noted by some participants. They explained that such an opportunity enabled them to observe the pharmacist interacting with patients, thus acquiring a sense of the nature of professional conduct in the pharmacy. The absence of meaningful exposure to the practice setting is obvious in the first year of the BPharm, due mainly to the prevalence of subjects dedicated to establishing a strong scientific foundation in the curriculum.[4]

***Student networks*:** The CS all agreed that forming networks with other students was an important part of their professional development. The students particularly valued the support they felt from fellow students in their cohort. "*We go everywhere together!*" (FGI-p5-F). They found this to be a great comfort and source of emotional and academic support during stressful periods of their study. Some students expressed a desire to extend this network through increased interaction with students in higher levels, in a mentor-type relationship. They felt this would improve their experience as a student and help them to develop professional skills, especially being able to discuss placement with more advanced students.

***Challenges**:* Students were asked to comment on what challenges they experienced in maintaining a high level of professionalism. In response students raised the issue of the level of professionalism exhibited by academic staff in the non-professional subjects, such as those in the basic sciences. These subjects are service-taught into the BPharm, being delivered by academics outside the College of Medicine and Dentistry in which pharmacy resides. The students felt that staff in these areas did not convey the same level of acknowledgement for the importance of professional conduct, behavior and respect compared to what they experienced within the pharmacy-specific subjects. The participants who questioned the professionalism of these academic staff members, felt that the experience *"adversely affected their self-esteem"* (FGI-p2:F) and represented a negative experience in their development as pharmacists.

7.4.2 Focus group II (FGII): Graduating students

Seven participants volunteered to take part in the graduating students (GS) focus group (F=4, M=3), representing 18% of the overall cohort. Analysis of the focus group transcript revealed three key themes relating to the factors which influenced their professional development, identified as 1) placement/part-time work, 2) pharmacist-educators and 3) curriculum. When asked about influencing factors on their professional development, the immediate response was placement/part-time work first and foremost, followed by the role played by the pharmacist-educators and lastly, the impact of curriculum.

Placement/part-time work: The GS were all in agreement that placement opportunities during their third and fourth years had played a central role in their individual professional development. Students commented that they were ready to go "out there" and start

practicing, in particular looking forward to employment, where they could experience being a pharmacist for longer than a few weeks, as is the case with experiential placements.

> *"I can't wait to get out there and do this on a day to day basis. Having the ability to continuously apply your knowledge.* (FGII-p4-M)

The GS expressed that they were looking forward to the workplace as they were ready for an extended opportunity to put their training into practice.

Pharmacist-educators: The GS perceived pharmacist-educators as playing an essential role in their professional development. The students stated that they particularly valued those staff who took the time to interact with them, treating them like colleagues or as a member of a team. Students felt a sense of mutual respect, when academic staff "*treated them like equals, while still maintaining professional boundaries*" (FGII-p6-M). The students were thus clearly becoming more aware of the value of interactions with academic staff, especially those in active practice. They felt that this was particularly influential in their development and helping them to feel part of the profession. One student commented on the impact of a senior academic pharmacist in the program:

> *'it's that level of expectation, which you want to achieve because she's so passionate about what she does. Ideally that's what I want to strive to, is be passionate about my career.'* (FGII-p1-F)

When probed further about what the pharmacist-educator brought to their educational experience the students identified the value of the professional stories and description of their encounters in the practice:

> *'Probably in the small group settings, like just in tutorials, things like that where you can speak to people one on one, and any settings where, I like it when people share their experiences. Where they say, this is something that you'll probably see. That makes it stick in my mind'.* (FGII-p2-F)

The students also commented on the value of feedback to their learning, in particular the feedback given by pharmacists currently working in the practice:

> *I think obviously in the counselling it's probably a great place to have pharmacists because obviously it's their job, it's what they do, and so their feedback is probably the most valuable that we get in those because they literally just tell you, yeah. They know how to keep it brief, they know what to say, they know everything they need to say*. (FGII-p6-M)

Curriculum: The GS noted the impact of pharmacy-specific subjects within the curriculum on their professional development. The students explained that this was the year "*we had proper dispensing and counselling practicals and the OTC (over the counter) subjects*" (FGII-p2-M). They observed that there was an appreciable change in student behavior in the third year of their studies, in particular an increased level of maturity and respect for others. They attributed this to the introduction of simulated patients within the counselling and dispensing subjects. Simulated patients were community volunteers who portrayed the role of a real patient, giving students the opportunity to practice their counselling skills during class. One student reflected on the impact of the presence of the simulated patients on his development:

> '*I think the maturity level also increases when we're given responsibility for a patient. Third year we start learning about different health issues and we're responsible for helping someone, and so that makes us responsible for what you're going to say to them. So in the first and second year you don't really do too much of that so we're not held responsible at that point.*' (FGII:p4-F)

The students in the focus group were also asked to comment on the role of the science-based subjects in their professional education. The students did not feel that these subjects contributed to their professional development and described them as big and impersonal: "You just felt like sheep" (FGII-p1-F), "I just felt like another number" (FGII-p3-M). The students all agreed that they did not learn anything about professionalism from the science-based subjects. In contrast they could see that the pharmacy-specific subjects were inherently relevant to the practice and that they felt like they were being taught "how to be a pharmacist". They stated that the experience of the early years in the BPharm would be improved if the science subjects could be related to pharmacy more often.

Challenges: The GS focus group included a discussion of factors, which the students felt negatively impacted on their professional development and identity formation. Students stated that they were sensitive to the lack of appreciation of what a pharmacist does and felt that the profession can be devalued through a lack of understanding of the scope of the professional role:

> *'No one really understands how hard we have to work and how much knowledge we actually have to have to be a pharmacist.'* (FGII-p4-F)

Kelly *et al* report that the public have a basic understanding of the role of the pharmacist, but that additional services offered by pharmacists are often cognitive in nature and difficult for patients to appreciate. The study concluded that there is a need for education to increase

awareness of the specialised skills, knowledge and professional abilities that the pharmacist has to offer [12].

Professional identity:

Students were asked to comment on their understanding of professional identity. The responses were varied, with students expressing uncertainty around the concept:

> *"I'm not sure. Is your professional identity more like your title, whereas professionalism is how you conduct yourself?"(FGII-p6-F)*
>
> *"Professionalism is individual, whereas professional identity is a group of pharmacists."(FGII-p3-M)*
>
> *"Like, your professional identity is more like what other people see and what you think of yourself as being whereas professionalism is as a group as a whole"* (FGI-p1-M)
>
> *"Professionalism is a core like as a group. I think your professional identity is individual and specific to you."* (FGI-p3-F)

Several students also thought that professionalism and professional identity referred to the same concept.

7.5 Discussion

The aim of this study was to explore differences in student perceptions of their professional development, comparing responses from commencing and graduating students. Analysis of the two target focus group transcripts revealed common themes from both groups. Each group raised three common themes, with differences being in the prioritisation of and emphasis within the themes. The three themes found across the two groups were curriculum, pharmacist-educators and placement/part-time work in pharmacies. The GS emphasised the role of placement/part-time work as the most important factor in their professional development, whereas the CS placed pharmacist-educators as a primary influence. One additional theme was revealed in the CS group, but absent in the GS group. Student networks was a theme revealed by the CS and was identified as an important source of emotional and academic support. Research reports on the positive effects of

student support networks across discipline areas such as nursing and medicine.[13,14] The study in nursing found positive effects of student co-operative networks on socialisation and academic achievement.[13] A study of medical students demonstrated that the presence of peer social support may assist in lowering psychological stress and improve academic performance.[14] Student networks were not identified by the GS as being a significant factor in their professional development. This can perhaps be explained by the cohesiveness of the graduating cohort, especially in a small group (n=40), where collegiality and peer support has been embedded and thus taken for granted. In addition after four years of study student confidence and maturity and sense of self is more developed as their time at university comes to an end.

Placement/part-time work

Both the CS and the GS commented on the importance of placement and part-time work to their development as professionals. In particular the GS identified placement as the core contributor to their preparation for the workplace. The critical role played by placement in student professional development is well documented in the literature.[4,5,15] The results of the GS focus group are in direct agreement with the work of Burrows *et al* who found in a study of graduating pharmacy students, that part-time work and experiential placements exerted the most influence on student understanding of practice.[16]

The GS in particular were looking forward to the workplace as they would have longer than a few weeks, as in the case of placements, to immerse themselves in the practice. This raises the issue of extended placements as suggested by Teherani et al in their discussion of the benefits of implementation of longer term professional placements in medical education. This study found that students had benefitted from continuity in their clinical experiences, as there are more opportunities to observe role models and experience patient-centred practice.[17] However, Teherani *et al* also noted that while these extended practice experiences are valuable and students rated them more highly than other shorter arrangements, implementation can be difficult to achieve.[17]

Curriculum

The CS and the GS both identified aspects of the taught curriculum, which contributed to their professional development. The students identified the professional pharmacy subjects, as distinct from the science-based subjects, as having an important role in enhancing their understanding the role of the pharmacist. In contrast they sometimes found it difficult to

relate the material taught in the science-based subjects to the practice of pharmacy. This view is most likely to be encountered in the basic science subjects, where students have difficulty seeing the relevance of the material to the professional practice.[18] A study focused on pharmacy education stated that the content must be interesting to students, reporting that student engagement can be enhanced by the use of real-world examples and experiences to create more meaningful learning experiences.[19] Students (both CS and GS) stated that they were more interested in subjects which were relevant to pharmacy or where effort was made to make the relevance clear:

> *So even in second year we were learning about the cell cycle, in my head I'm like, why are we learning about this? It wasn't until oncology when you actually realise why you need it. And if they tailored it that way it would have been a lot more interesting.* (FGII-p6-F)

To enhance student motivation for learning, it is necessary to create learning opportunities which make the students feel like they are connected to the profession of pharmacy through meaningful, relevant activity.[20] The students in this study particularly noted the value of clinical dispensing classes and the use of simulated patients, which have been previously identified as contributing to student professional development.[5 21,22] Noble *et al* observe that role ambiguity could occur when efforts are not made to demonstrate relevance within, for example, science-based subjects.[8]

The CS in particular appreciated having clear expectations regarding professional conduct conveyed to them as part of the curriculum material and valued the opportunity to participate in discussions regarding professionalism and professional conduct. Taylor and Harding comment on the value of early education relating to the professional practice of pharmacy. With early intervention, students see themselves as preparing for a professional role, as well as acquiring scientific knowledge for the practice.[23]

Pharmacist-educators

Both the CS and the GS recognised the positive impact of the pharmacist-educators on their professional development. The presence of professional role models is often identified in the literature as having a positive influence on student professional development.[5,24,25] As Hammer so aptly states: 'The role of the practitioner should be mentor, teacher, motivator and keeper of the flame as it relates to the standards of the profession'.[25] The presence of full-time practicing pharmacists as teaching staff, while valued by the students, is however difficult to achieve and is often limited to casual teaching positions. In the JCU BPharm all of

the pharmacy practice academic staff have active positions as pharmacists either in hospital or community settings. In addition, sessional (casual) staff at JCU who assist in workshops or laboratory practical classes, are all practicing pharmacists. The presence of pharmacists with current practice experience is particularly important for maintaining relevancy and connection to current issues in the practice.[23] Harding highlights the credibility that pharmacist-educators bring to the role, as a representative of the real world context, which promotes student interest and engagement.[26] Schafheutle et al also comment on the impact of poor role models, potentially causing confusion amongst students.[5] In this study, both CS and GS identified behaviours from some academic staff delivering science-based subjects, as having a negative impact on their development as professionals. Akiyode recommends that reviews of staff professional conduct be carried out regularly, in order to create a culture, where students can develop amongst exemplary role models.[27]

There was a notable difference, in the way in which the two groups of students sought interaction with pharmacist-educators. The CS commented on the value of observing the behaviors of pharmacist-educators, while the GS highly valued direct interactions on a professional level. The GS demonstrated an increased appreciation of the value of interactions and engagement, especially with pharmacist-educators, who currently work in the practice. This developmental differentiation is explained by the concept of legitimate peripheral participation proposed by Lave and Wenger, in their theory on Situated Learning .[28] The authors propose that learning does not occur on an individual basis, but is created through the social interactions encountered on a daily basis. These encounters are initially observational in nature, as in the case with the CS, but become increasingly complex as the level of engagement and participation increases. Hammer states that the role of practitioners in professional socialisation of students cannot be understated, that student exposure to these practitioners, before they are supervised in a formal placement setting is invaluable.[25]

Orsini *et al* also discuss the importance of establishing a rapport with students for supporting student relatedness. When pharmacist-educators create a setting in which students feel like a member of the team and feel valued as a future professional, an environment of relatedness is established which contributes to student autonomy and motivation.[29,30] As the GS noted in this study, they also found value in the stories which the pharmacist-educators would bring to the classroom. The value of the narrative in enriching learning has been reported in areas such as medicine, nursing and pharmacy.[31-33] Student engagement is enhanced when educators bring “real-life” experiences with them, making the learning experience more meaningful, connecting the students to the patient’s reality, and ultimately making them better practitioners.[19,31] Positive and constructive feedback provided by pharmacist-educators is also instrumental in supporting student competence and motivation

[29] and has also been linked to professional identity development.[8] Noble *et al* suggest that opportunities should be found within the curriculum structure for such feedback events[8].

This study has also highlighted that students found it difficult to distinguish between professionalism and professional identity. Many saw the two as being equivalent, or that professional identity referred to the manner in which patients or the public perceived the pharmacist. "*I can also see professional identity being how others see you, but professionalism is how you believe you act and how you believe you're going about being a professional"* (FGI-p3-F). Cruess et al point out that professionalism is distinct from professional identity formation, which refers to a process [6]. This lack of understanding draws attention to the need to address both professionalism and professional identity with students so that they can begin to understand the mechanism by which they develop as an emerging professional. A strategy suggested by Noble et al recommends initiating a dialogue around professionalism and professional identity in the first year of study.[8]

Issues arising from this thematic analysis have implications for current teaching practices in the area of pharmacy education. In summary students in this study felt that their professional development was positively impacted, when they observed pharmacist-educator behaviours, developed a rapport with staff, received constructive feedback, learnt through demonstration of the relevance of basic science to current practice and experienced emotional support. Autonomy-supportive teaching features instructional strategies to address these needs. Autonomy-supportive teaching is "a coherent cluster of teacher-provided instructional behaviours that collectively communicate to students an interpersonal tone of support and understanding" (p687).[34] These behaviours include the provision of constructive feedback, emotional support, respecting and identifying student needs, active participation and giving value to uninteresting tasks, to name a few (Table 7-2). In light of the results of the focus groups in this study, such an approach would serve to directly address the learning needs identified by both the commencing and graduating students. Central to autonomy-supportive teaching is the willingness of the educator to form relationships with students, acknowledge their needs and appreciate their perspectives.[35] Data from this study have clearly demonstrated that in their relationships with staff, students move from simple observation of behaviours in their early years, to seeking more advanced professional interactions by the end of their time of study. Understanding these changing student needs would enable the instructor to more closely align the level of autonomy support with the stage of development and maturity.

Table 7-2 Autonomy-supportive teaching Strategies for stimulating intrinsic motivation developed by Kusurkar et al,20 derived from self-determination theory.

Strategies
Identify and nurture what students need and want
Have students' internal states guide their behavior
Encourage active participation
Encourage students to accept more responsibility for their learning
Provide structured guidance
Provide optimal challenges
Give positive and constructive feedback
Give emotional support
Acknowledge students' expressions of negative effect
Communicate value in uninteresting activities
Give choices
Direct with 'can, may, could' instead of 'must, need, should'

Orsini et al see autonomy-supportive teaching as a human-centred approach to instruction and of particular benefit to students in the health professions.[29] Students who are taught in an autonomy-supportive manner are more likely to provide care which promotes patient autonomy, leading to better health outcomes.[36] Integrating the above approach into current professional education teaching practices may serve to give students the human-centred learning experiences necessary to become more patient-centred professionals.

Limitations. This study was carried in a single school of pharmacy with data being collected from only two focus groups. The main investigator had an instructor role within the program, but students were advised that the objective of the study was to ascertain their opinions and perspectives regarding student professional development and that there was no connection to their awarded grades.

7.6 Conclusion

The aim of this study was to explore commencing and graduating student perceptions of factors affecting their professional development, including their understanding of professional identity. Findings revealed that from the two student groups, three common themes emerged, namely, curriculum, placement/part-time work and pharmacist-educators. Both commencing and graduating students had a poor understanding of the concept of professional identity, an expected result, as it is an unfamiliar construct in the area of professional education in pharmacy. Factors identified by the students suggest that

autonomy-supportive teaching strategies may have a role in providing a learning environment which is student-centred, relevant and supports professional development.

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8 CHAPTER 8 PHARMACY STUDENT PERCEPTIONS OF THE WHITE COAT CEREMONY

This chapter reports on student perceptions of a white coat ceremony which was introduced into the BPharm program and held at the end of first year. The study was conducted after four white coat ceremonies had been held, so students in all levels of the program were surveyed. The chapter has been submitted as a paper with the *Journal of Pharmacy Practice and Research* and is currently under review.

Mylrea MF, Sen Gupta T, Glass BD. Student perceptions of the white coat ceremony in a pharmacy program in Australia. JPPR; Under review

Authors' contributions

Martina Mylrea conducted the study, collected the data, analysed the data and prepared the manuscript. Beverley D Glass critically reviewed and revised the manuscript prior to submission. Tarun Sen Gupta provided tertiary health education expertise.

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8.1 Abstract

The white coat ceremony (WCC) is an opportunity to welcome students to the profession while highlighting the essential characteristics and responsibilities of the pharmacist. After three consecutive years of white coat ceremonies, all pharmacy students enrolled in 2017 were invited to complete an online survey, designed to ascertain student perceptions regarding the impact, meaning and timing of the ceremony. A total of 78 respondents, representing a 56% response rate, revealed that students at all levels of the program were positive about the WCC and were proud to receive a white coat (90%). They demonstrated a clear understanding of the role of the ceremony and reported that the preferred timing for the WCC was at the end of fourth year (43%) of the program. This study revealed that the ceremony was perceived positively and represents a worthwhile strategy for enhancing student connection to the profession of pharmacy.

8.2 Introduction

White coat ceremonies (WCC) have become a key strategy in the professional socialisation of pharmacy students in schools and colleges in the US.[1] In Australia there has been increasing interest shown in the practice, with several schools incorporating the ceremony into existing degree programs. The WCC was amongst a series of recommendations first published in the US, which were designed to promote student professionalism.[2] A white paper on pharmacy student professionalism,[3] published in 2000, by the American Pharmacists Association – Academy of Student Pharmacists (APhA-ASP) and the American Association of Colleges of Pharmacy, Council of Deans (AACP-COD), sought to bring student professionalism into sharp focus. The aim of the paper was to introduce consistency around professional standards in pharmacy education. Following this paper was the publication of a Pharmacy Professionalism Tool Kit (PPTK) in 2004, which provided educators with strategies for integrating professionalism into pharmacy programs. The toolkit identified ten traits, which specified the professional characteristics of the pharmacist, including knowledge and skills, commitment to self-improvement, service orientation and pride in the profession. The latter described desired characteristics such as dedication to patients and the demonstration of a strong work ethic. The toolkit also made several recommendations for inculcating pride in the profession including the enforcement of a dress code, professionalism committees, professional awards and white coat ceremonies.

The white coat, which is presented to students during the WCC, is described in the toolkit as "a powerful symbol of the immense responsibility that pharmacists have as health care providers".[4] It aims to create a sense of pride and belonging for students new to the profession. Recommended as a strategy for professional socialisation, it is used widely in pharmacy and medical education in the US as a means for enhancing professional identity.[5] The ceremony is usually held as part of the welcome for new students or early in the first year of study.[4] The ceremony may also be delayed until the students are in their third year of study, when they are immersed in experiential placements for the first time.[6] In contrast, the WCC does not currently play a role in pharmacy education in the UK.[7] The practice is however gaining popularity in Australia, with several schools adopting the ceremony, including the University of Queensland, University of Newcastle, University of New England, and James Cook University.[8,9] [10]

This study examines BPharm student perceptions of the WCC, at James Cook University (JCU). Specifically this study was interested in determining the impact, meaning and preferred timing of the ceremony from the student perspective.

8.3 Methods

JCU held its first WCC in 2015, with students receiving their coat at the end of their first year of study. All first year students were invited to attend to receive their white coat, to symbolise their introduction into the profession of pharmacy. The ceremony was held towards the end of the year in conjunction with the annual pharmacy awards night. Before the presentation of the coats, the students recited an oath, a series of 10 statements, committing themselves to the highest standards of practice and continual self-improvement and education. In preparation for the ceremony, the first year students in the 2015 cohort participated in a series of workshops, where the oath was developed and then used for subsequent ceremonies.

To determine undergraduate pharmacy student perceptions of the WCC, an online survey was developed in 2017. Students from all year levels were informed of the study and invited to participate. The students were given a brief presentation about the nature of the study and provided with an information sheet, which outlined the objectives of the study. The students were then sent an email containing the survey link, calling for volunteers to complete the survey. Consent to participate in the study was incorporated into the survey opening page, requiring the student to indicate their willingness to participate before proceeding to the survey questions. The questionnaire included seven questions relating to the implementation of the WCC. Participants were asked whether or not the ceremony had an impact on them, using questions such as “The white coat ceremony made me feel a part of the pharmacy profession”, indicating their level of agreement using a five-point Likert scale, ranging from strongly disagree through to strongly agree. Included also were five demographic questions and four open-ended questions, the latter asking students to explain the meaning of the WCC and their preferred timing for the WCC. The final question asked the students to self-rate their level of professional identity or their sense of feeling like a pharmacist. The scale was named PIRATE (professional identity rating), with the participant indicating their level of professional identity on a scale of 1 to 10, with 1 representing the lowest sense of professional identity and 10 the highest. Initiatives such as the WCC are reported to contribute to student professional identity[11], so this question was included in order to be able to compare student sense of professional identity in each of the year levels. Quantitative data was analysed using Statistical Package for the Social Sciences software (Version 23.0, SPSS Inc, Chicago, USA) while open ended responses were coded and summarised manually. Approval for the study was sought and granted from the JCU Human Ethics Committee (HREC#:7083).

8.4 Results

A total of 78 responses were received from across the four year levels, representing a 56% response rate, with Table 8-1 showing respondent characteristics. The PIRATE score, a self-rate scale from 1 to 10, indicating the student's sense of professional identity, is also shown. Level 2 enrolment was lower than in previous years, hence the low number of responses.

Table 8-1 Respondent Characteristics by year level

Characteristic	First year	Second year	Third year	Fourth year
Age, mean(SD), yrs	23	20.8	22.2	21.9
Sex: female (%)	56	63.6	58	69
Pharmacy was the course of first choice: yes (%)	72	73	77	73
Worked or works in practice: yes (%)	36	46	96	73
PIRATE (self-rating scale)	5.8	6.2	7.8	7.7
Responses n (% response)	25 (53)	11 (65)	26 (74)	16 (39)

Survey participants were asked a series of questions relating to their perceptions of the WCC. The majority of students expressed a high level of satisfaction with the introduction of the WCC and felt that it positively impacted on their professionalism, giving them a sense of connection with the profession (Table 8-2.) There was a low percentage of students in each level for whom the white coat ceremony had no impact.

Table 8-2 Percentage of survey participants who answered agree or strongly agree to the white coat survey questions.

Question	First year %	Second year %	Third year %	Fourth year %
The white coat ceremony was an important recognition of my entry into the profession of pharmacy.	83	73	79	80
The white coat ceremony was an important part of my experience as a student of the BPharm	92	82	79	87
The white coat ceremony had a positive effect on my sense of professionalism.	88	73	75	93
The white coat ceremony made me feel a part of the pharmacy profession.	88	82	83	87
The white coat ceremony gave me a greater sense of professional identity.	88	64	79	87
The white coat ceremony had no effect on me at all.	17	18	25	7
I am proud to have received my white coat.	92	91	75	100

Participating students were asked to state their preferred timing of the WCC. The responses indicated preferences for the end of the first or fourth year, with fourth year narrowly being the preferred option. (Table 8-3). Students who chose level 1 as the preferred time for the WCC, saw the coat as an incentive and spoke of the white coat providing the motivation to complete the degree: "*Definitely at the beginning of the degree, it gives the students drive and a sense of purpose*".

Table 8-3 Survey participant preference for timing of the White Coat Ceremony

Year of study	**%**
1	39
2	10
3	8
4	43

Conversely, the participants who chose fourth year as the preferred option cited the value of the presentation of the coat as a symbol of their imminent entry into the real world of practice, one student describing it as an appropriate recognition of "*the transition from students into intern pharmacists."* Another participant also stated that the ceremony would have had more meaning if it had been held in the final year of study, in recognition of the "*completion of training and a true achievement after four years, to get the coat*". Students in fourth year also commented that students in Level 1 would not understand the meaning of the coat, therefore holding the ceremony in the final year would be more appropriate: "*Level 1 students don't fully appreciate or realise the importance of the ceremony".* A small percentage of students stated that they thought the ceremony should be held just prior to the formal experiential placements in the third year of the course.

The open-ended response section of the survey asked students to comment on what they thought was the purpose of the WCC. A selection of sample responses is shown in Table 8-4. Almost half of students saw the ceremony as a way to welcome students to the profession (46%) with a smaller proportion viewing the ceremony as a way of enhancing student professional identity (12%).

Table 8-4 Sample responses to white coat survey open ended question

Question	Responses
What is the purpose of the white coat ceremony?	To develop a sense of pride within the profession To give a feeling of belonging to profession A welcome to the profession A rite of passage and acceptance into the pharmacy profession I think the purpose is to highlight the importance of our role in the profession It's an identification of belonging as a professional, to a professional group (pharmacists), and an acceptance of responsibility that comes along with it. To instil the fundamental beliefs that underpin our degree including the standards, ethics and compassion that is required of us

Responses varied from a focus on individual development, professionalism and belonging, to a broader appreciation of the importance of the professional role of the pharmacist.

8.5 Discussion

Impact

The survey instrument revealed that the majority of the students from all year levels of the BPharm, responded positively to the introduction of the WCC. The PPTK suggested that the impact of the WCC could be enhanced through student involvement in the development of a unique oath for each year, so as to invoke a sense of "creativity, ownership and pride".[4] Thompson et al explain that the WCC plays an important role in student professional socialisation, as it represents a symbolic recognition of the student entry to the profession.[12]

The majority of students, with the exception of second year students, felt that the WCC gave them a heightened sense of professional identity. Only 64% of the second year students felt that the WCC increased their sense of professional identity. The PIRATE scores of first and second year students were also lower than third and fourth year students. This is an important result as it reflects the student experience, in the early years of the course. The first two years of the BPharm program is heavily weighted with foundational science subjects such as chemistry and anatomy, with limited experiential placement opportunities. As formal experiential placements only occur from third year onwards, the students suffer a lack of connection to the practice as described by Stupans et al.[13] A study by Taylor and Harding[14] found that pharmacy students often delayed professional identity development, until they had formed a solid scientific knowledge base. Symbolic rituals such as the WCC in the first

year of study, could thus serve to provide a connection to the practice and bring forward the process of professional socialisation.[12]

Meaning

Students were asked to comment on the meaning of the WCC. The survey participants demonstrated an appreciation of the symbolic meaning of the ceremony and the recognition of their future practice responsibilities. There was a large proportion of the respondents who saw the ceremony as a way of welcoming new students to the profession. In order to fully develop the concept behind the WCC, Kelley et al recommend active participation in preparation for the WCC, suggesting reflection and discussion around the meaning of the WCC.[15]

Recently the Bristol Dental School reported similar results with the introduction of a Dental Scrubs Ceremony, inspired by the WCC in the US. Their study revealed that the dental students appreciated the inherent symbolism in the ceremony and found it to be worthwhile.[11] In a study of medical students, Brown et al found that a WCC, held during the students' first week in the course, provided an opportunity to create a culture where professionalism is valued and encourages students to reflect upon the health professional they will become.[16] Hammer comments further that in order to successfully socialise students, the WCC should be part of a comprehensive plan to promote professionalism across the entire curriculum.[17]

Timing

The student respondents were divided on the most appropriate time to hold the WCC. The stated preferred options were, during first year or fourth year at 39% and 43% respectively. Australian universities which hold a WCC, schedule it during the first year of study.[8-10,18] Research in health professional education has long been supportive of early intervention, when it comes to professional development, encouraging the early provision of opportunities for open discussion and reflection around the concept of being a professional.[17,19-21] In the US, the role of the WCC is seen predominantly to recognise the student transition into the clinical part of the program, with 59% of US schools holding the WCC prior to the start of experiential placement experiences.[1] The results of this study suggest that perhaps there is a need for recognition for both commencing and graduating students, as the students view these as significant milestones in the program which need to be recognised. The PPTK also

suggests the use of a pinning ceremony as recognition for students entering the clinical part of the curriculum.[4]

8.6 Limitations

This study was carried out in a single school of pharmacy which may limit the ability to generalise the outcomes. The study design however sought to populate the focus groups to be representative of the larger student population with students from all levels of the BPharm course, both genders represented and including both school leavers and mature aged students.

In relation to the survey instrument used it is worthwhile noting that the PIRATE scale was included as a simple scale from which to attain a general sense of student professional identity. This was not a validated measure and was not intended to be used to corroborate or refute the findings of this study.

8.7 Conclusion

This study is the first in Australia to explore perceptions of the WCC amongst undergraduate pharmacy students. The results show that the WCC had a positive impact on the students and that they gained an appreciation of the symbolism and intention of the ceremony. Student responses indicated almost equal support for a WCC either in first year or fourth year. Low professional identity scores from the first year students, however, indicates the need for interventions, such as the WCC, which provide opportunity for a sense of connection to the profession at an early stage in the degree program.

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9 CHAPTER 9 PRECEPTOR EXPECTATIONS AND EXPERIENCES OF PHARMACY STUDENTS DURING EXPERIENTIAL PLACEMENT

This chapter uses individual interviews to explore preceptor expectations and experiences of a student on placement in their pharmacy. The interview process allowed a more in-depth discussion of the preceptor perspective, thus assisting university educators to prepare students for placement. Under submission with IJPP.

Mylrea MF, Sen Gupta TS, Glass BD. Preceptor expectations and experiences of pharmacy students during experiential placement. IJPP. Under submission

Authors' contributions

Martina Mylrea conducted the preceptor interviews, transcribed the data, conducted a thematic analysis and prepared the manuscript. Beverley D Glass critically reviewed and revised the manuscript prior to submission. Tarun Sen Gupta provided tertiary health education expertise.

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9.1 Introduction

Experiential learning is a key element in the preparation of undergraduate pharmacy students for professional practice, as it provides the opportunity to experience their role in the profession.[1-4] Placement opportunities provide an essential link between university and the practice, by demonstrating the relevance of classroom knowledge and developing student professional identity.[3] Preceptors play a key role in facilitating learning as they provide support and guidance during experiential placements.[5] The Pharmacy Board of Australia publishes guidelines for preceptors in their role of developing intern pharmacists[6], but there is a paucity of information regarding the role of the preceptor in guiding pharmacy students during their placement experiences. It is important to determine preceptor expectations in order to design curriculum so that students can be adequately prepared for their placement[3] and that preceptors are sufficiently supported in their role.[4] The aim of this study was to determine the expectations and experiences of preceptors with regard to their role in developing undergraduate student professionalism while on placement.

9.1 Method

Preceptors supervising a third year student at their place of practice, were recruited for interview. All preceptors were approached during routine placement visits and an interview was requested. Twenty pharmacy placement sites were visited with 11 agreeing to an interview. The aim to was recruit a sample that included both community and hospital pharmacists. The researcher returned to the pharmacy at a later agreed date to conduct the interview, which lasted approximately 1 hour each. In total eleven interviews were conducted (7 community pharmacists, 4 hospital pharmacists) during which pharmacist preceptors were asked to comment on their expectations and experiences of a pharmacy student on a three week placement. The students were at the beginning of their third year of study in the four year BPharm at an Australian university. This is the first extended experiential placement in the program, with previous experiences being observation-based.

Interviews were audio recorded and transcribed for thematic analysis. Transcripts were imported into NVivo v.11 data management software (QSR International Pty Ltd, Doncaster, VIC Australia) for thematic analysis using an analytical framework that identified key concepts such as ideas, experiences and preferences of the participants[7]. The coding of the data and subsequent organisation into categories or themes[8] was carried out by MM and verified by BG. Selected quotes from interviewees were referenced according to participant initials and gender (M or F), for example interviewee CR, female is represented by Int:CR:F.

Research ethics approval was sought and granted by the JCU Human Research Ethics Committee (JCU HREC#H6525).

9.2 Results

Thematic analysis was conducted on interviewee responses regarding expectations and experiences during the placement period. Preceptor expectations reflected two themes; the role of the preceptor and student conduct while on placement. Preceptor experiences were categorised into three themes; identifying student strengths/weaknesses, preceptor support and communication.

Expectations: preceptor role

All of the preceptors interviewed expressed the expectation that they would serve as a role model for students on placement in their pharmacy. All participants believed that it was their role to demonstrate exemplary professional conduct and best practice for communicating and interacting with patients. *'Well, it's a big role, and it's to act as a role model in terms of all areas of pharmacy practice, …, how to act in a professional manner, how to communicate with patients.' (Int:CR:F)* Other preceptors also saw their role as giving students opportunities to reinforce and build upon the knowledge gained at university, giving them an opportunity to apply their knowledge. '*I would like to say that it's guiding student pharmacists in such a way that they can develop what they've learnt in theory and put it into a practical context.' (Int:SM:M)* A less common response, but that of two preceptors, was the more complete view which endeavoured to develop the student in the entire role: '*I believe that my role is to encourage them to participate as a* pharmacist*.'(Int:VL:F)* They saw their role as a facilitator, in assisting the student to immerse themselves into the role of the pharmacist during their time on placement.

Expectations: student conduct

All the preceptors interviewed had high expectations around how the students presented themselves in the workplace and the way in which they conducted themselves around staff and patients. They expected the students to present professionally and be confident communicators. '*I understand that most of them are new in the field, but there is still a degree of professionalism that you expect. I expect them to be professional in appearance, shirt tucked in, communicating professionally' (Int:LP:F).* The preceptors also noted that they

expected students to be familiar with pharmacy codes of conduct and be cognisant of the importance of ethics and confidentiality. *I would expect them to present professionally in terms of appearance and demeanour. I would expect them to be very aware of confidentiality and privacy issues, and I would certainly expect them to always ask if they're not sure of something' (Int:CR:F).* Three preceptors also expected that students would possess a well-developed clinical knowledge base coming into the placement experience; *'You will become a professional, so you need to make sure that you're clinically prepared to do your role." Like that I see as professionalism as well' (Int:SP:M).* Two preceptors expressed an expectation that the student has the ability to adopt and display professional behaviours to the level of a qualified practitioner, while on placement. '*I do expect them to act as if they were a professional pharmacist.' (INT: CR: F)* Several preceptors also commented on the expectation that students demonstrate a desire to learn and be active participants in their development. They saw a willingness to learn as part of their commitment to the profession: '*To actually be actively involved in their own learning as well. So if we're asking them to do things or research things I'd like them to go and do those things as well.' (Int:DG:F)*

Experiences: student strengths and weaknesses

The preceptors reported that the students on the whole were enthusiastic participants and presented well. They also noted that some students had areas which required more development. While the majority of students presented professionally there were a small minority who lacked appropriate '*professional presentation and professional demeanour' (Int:CR:F)* Preceptors also noted student lack of confidence as commonplace and many students were nervous about interacting with the public.: *They generally lack confidence which is understandable coming into a new place and you're only here for two to six weeks. (Int:EL:F)*

Many of the preceptors identified that student communication skills could be improved. More specifically one preceptor identified that students had difficulty with *'active listening' and communicating complex information to patients.(Int: DG)* Several of the preceptors observed that the more confident students were those who had or currently worked in a pharmacy (IntCR). The preceptors also noted that the demands of a busy workplace presented a challenge to many students. They observed that students had difficulty coping with the demands of a busy pharmacy and lacked the ability to manage multiple tasks at the one time:

So, I think because at university, when you are doing a task, you're able to concentrate on that task. I think it's very difficult when they come and there might be five things going at once, and you do have to be able to listen to what everyone's doing or you have to be there. You have to be, so I think that's very difficult for them. (Int:VL:F)

One preceptor described the challenge in supervising a student was to determine *"how to develop confidence in a chaotic environment"!! (Int: CR:F)* She observed that students found it difficult performing under pressure. She also suggested that providing real life scenarios at university may prepare the students for the practice setting: '*if they're exposed to environments through the university course where they are required to multi-task, to make quick decisions whilst doing two or three other things at the time that might help. (IntCR)*

A preceptor in the hospital setting also commented that one of the more challenging aspects of for the students was the ability to negotiate professional relationships, for example working with a range of health professionals in a hospital setting. Understanding and exhibiting appropriate behaviours when working with teams of health professionals was identified by a hospital preceptor as an area for development.(Int:SP:M)

Experiences: preceptor support

Preceptors felt that the placement experience could be enhanced through additional instruction for students in areas such as professionalism and also improved communication between the preceptor and the university. Students needed to have the understanding of the importance of professionalism: '*I think preparing them to understand that, as a professional, your communication skills and your ability to work with others, are just as important as your clinical. (Int:SP:M)* Several preceptors also spoke about the importance of student development in the so called "soft skills"; self-awareness and self-reflection. Another suggested that university studies should include training in psychology, reflective practice (Int:SM:F) and emotional intelligence (Int:CR:F).

Several preceptors expressed the need for better communication with the university around expected learning outcomes, while the student is on placement. *'I suppose you have expectations of us and what we will teach the students while they are here. If you wanted to be more detailed in those areas, that could be something that we could work on to make*

sure that it's worthwhile having them spending their time here on placement, instead of us sort of assuming what we should be training them.' (Int:DG:F) Other preceptors spoke about the potential benefit of having preceptor training (Int:RU:F), so that they felt better prepared to provide a valuable experience for the student. The possibility of having the opportunity to engage with other preceptor pharmacists and share experiences and strategies for educating pharmacy students was also raised. (Int:IP:F)

9.3 Discussion

There were two distinct views expressed by the participants regarding the role of the preceptor; one as role model for students, demonstrating exemplary conduct and practice. The second saw their role as a facilitator, showing students how they could apply and expand their existing knowledge base. A study exploring preceptor excellence as rated by pharmacy students, revealed that students valued the preceptor who took an interest in teaching, gave feedback, was a role model and took the time to relate to individual students.[9] The authors concluded that preceptors should be both role models and mentors to students. A subsequent study identified fifteen behaviours which were valued by students, which were then grouped into three roles; teacher, role model and learning facilitator.[10] It was recommended that use of such a model may be instrumental in assuring quality of placement.[10]

9.3.1 Expectations

Preceptor expectations varied from students presenting themselves professionally, to an anticipation that students conduct themselves as if they were a qualified pharmacist. Several of the preceptors interviewed, expected students to be capable of behaving and possessing the knowledge base necessary to function as a professional in the pharmacy setting. This is a significant expectation of a student who is only a little over half way through their degree. It also draws attention to the importance of the role of the university, in preparing students for their placements from as early as their first year with professional instruction and development.[2,11] This, it has been suggested, involves providing opportunities for students to think, act and feel like a pharmacist during their early years of study,[11,12] so that they are prepared to meet the demands of the workplace environment. A study of pharmacy preceptor expectations in Canada, found wide variation in expectations depending on the preceptor's previous teaching experience, workloads and individual student performance.[13]

One community pharmacy preceptor expected and encouraged students to be active participants in their learning. For example they expected them to research a topic they were unfamiliar with and be involved in all activities of the pharmacy. Active learning, where the student actively participates in their own learning, is an approach which is encouraged and has a greater impact on student professional development than simple observation only.[2]

9.3.2 Experiences

The majority of preceptors interviewed were satisfied with the professional conduct of students in their pharmacies, but called for support within the university curriculum to ensure that students gain an appropriate understanding of what it means to be a professional pharmacist. Preceptors called for pre-placement instruction on professional conduct, reinforcement of basic skills and the creation of scenarios where the student is exposed to working under pressure to simulate the real-world pharmacy context. Burrows et al[12] support this viewpoint, encouraging pharmacy educators to provide a broad and detailed experience within their curricula, to ensure a well-developed understanding of the role of the pharmacist.

Preceptors noted that students were more confident on placement if they had experience or were currently working in a pharmacy, they were more comfortable in the pharmacy, understood the structure and day to day operations and were better at communicating with staff and patients. This is confirmed in the literature which reports that part-time work in pharmacies increased student level of understanding of professional practice.[12]

One preceptor identified a lack of ability in some students for “active listening”. A study in the US used role-playing and active learning to develop communication skills, empathy and skills around motivational methods for interviewing.[14] The initiative resulted in improved scores on spoken and written assessments. An elective course developed in the US entitled “The Heart of Pharmacy”, employed reflective learning to explore psychosocial issues common to pharmacy practice and to develop student emotional intelligence. Students found value in the training, stating that it gave them a greater understanding of the pharmacist’s role as a listener and care taker.[15]

Several preceptors also commented on the potential value of the communication of expected learning outcomes required by the university. The provision of guidelines around learning would serve to standardise the student experience[13] and assist in the reinforcement of core

skills and knowledge.[16] In addition to clarity around learning outcomes several preceptors expressed a need for education training to assist them in managing a student in the pharmacy. A Canadian study[17] conducted a needs assessment of 132 hospital pharmacy preceptors which reported that educational support was requested by the preceptors, especially for those new to the role. The need for mentoring by more experienced preceptors was highlighted and training in areas such as feedback and assessment techniques[13] Similar results were reported by an Australian study in which pharmacists reported a need for education training to assist them in their role.[4]

9.4 Conclusions

Preceptors interviewed have high expectations around the professional conduct of students, with the majority recounting a positive experience with students demonstrating a high level of professionalism during their placement. However many called for more support from the university in developing student communication skills. Preceptors also commented on the need for increased communication with the university on the desired learning outcomes required on placement. They felt this may improve the experience for the student.

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10 CHAPTER 10 DISCUSSION OF FINDINGS

10.1 Introduction

This chapter draws together the findings presented in this study and considers the implications for professional education in pharmacy. A way forward is clearly demonstrated for educators considering student professional identity development in professional programs, one which adopts a novel approach, utilising a theory of motivation and identity development as a basis for the design of a professional identity program (PIP). This study is the first of its kind to adopt a longitudinal approach to pharmacy student professional identity development and as such provides an opportunity for educators to establish a theory-based, early intervention for first-year student professional identity development.

Contributions to the existing body of knowledge around professional education have been made by a) reviewing the existing literature on professional identity formation (PIF) in the health professions (Chapter 2) b) identifying a role for self-determination theory (SDT) in PIF (Chapter 3), c) designing a PIP based on SDT (Chapter 4), d) developing and validating a survey instrument, based on SDT, to measure motivation regulators in pharmacy students (Chapter 5), e) analysng the effect of the PIP on student motivation and identity (Chapter 6) and f) exploring the views of students and preceptors through organised focus groups and interviews (Chapter 7, 8 and 9).

10.2 Key findings

The aim of this research was to design, deliver and evaluate a professional identity program (PIP) for first year Bachelor of Pharmacy (BPharm) students, based on the theoretical principles of SDT. The study set out to test the hypothesis that participation in the PIP would increase student professional identity and the key findings are summarised under the headings below:

1.1.1 Design: A theoretical framework for Professional identity formation (PIF)

The literature is clear on the need for a theoretical framework for the development of student professional identity[1] and this study has delivered on professional identity development in a tertiary education setting, through the design of a program based upon a highly regarded and widely applied theory in identity development. As outlined in Chapter 3, SDT has been used to promote motivation in medical students,[2] but has not been applied to developing professional identity prior to this study. Previous studies have claimed the formation of

student professional identity, extrapolated from evidence of professional attitudes, values and behaviors.[3,4] These studies have value, in their contribution to professional education in general, but assume a causative link between professional identity formation and attitudes, values and behaviours, the existence of such a link, which is yet to be proven.[5]

Other frameworks have interpreted PIF through the lens of student exposure to the professional workplace.[6-8] While the role of experiential learning in professional development is well recognised[7,9,10], the availability of placement opportunities is generally limited in the early years of a pharmacy course,[9] therefore such a framework would be of little relevance to professional identity development in the beginning years.

1.1.2 Deliver: Anatomy of a PIP program

This study demonstrated the integration of a PIP into the existing curricular structure of the BPharm, employing identified strategies to support student autonomy, competence and relatedness. In particular autonomy-supportive teaching techniques were used throughout the program. Chapter 4 outlines the structure of the PIP, expanding on the ten workshops delivered over the two year program. Aligned with previous research findings on the development of student professionalism, practicing pharmacists were chosen to play key roles in the delivery of the workshops, leading group discussions, and interacting with students individually.

1.1.3 Evaluate:

10.2.1.1 Survey instrument validation – Pharm-S

The Pharm-S instrument was adapted from the Sports Motivation Scale–II[11], an SDT-based scale used to measure motivation regulators of athletes. In Chapter 5, the Pharm-S was validated and regression analysis revealed a moderate positive correlation with scores on the MCPIS-9, indicating a link between motivation and professional identity, thus providing support for the link as described by SDT.[12] This finding provides justification for the use of SDT as a framework for facilitating professional identity development.

10.2.1.2 Evaluation of the PIP

In Chapter 6, analysis of Pharm-S scores over two years, revealed that the implementation of a PIP, was successful at increasing student motivation. According to SDT, an increase in motivation is associated with a process of integration into one's sense of self, or identity formation. The results show that the significant increase in motivation occurred at the end of

the second year of the PIP. This supports the study hypothesis that participation in a PIP increases student professional identity. Other studies have observed that students often delay PIF until the later years in the course,[13] but as PIF occurs over an extended period of time,[14] it is recommended that professional instruction commences in the early years of study.[15,16] This study demonstrates that an early intervention PIP increased motivation, by supporting student competence, relatedness and autonomy, while providing opportunities for authentic connection to the profession.

The program evaluation survey revealed that the students reacted positively to the introduction of the PIP, stating that it increased their understanding of professionalism and professional identity. PIF research encourages educators to "actively intervene to support professional identity formation",[17] with others reporting on the value of providing opportunities for interactions with pharmacists in mentor roles,[15,17] The program developed in this study has achieved this by engaging students in a dialogue around professionalism with practicing pharmacists and authentic activity, early in the first year of study.

During the final stages of this study, Welch et al published a paper describing the implementation of a professional program designed to enhance professional identity. In a similar manner to the PIP, the program supplemented the existing curriculum with co-curricular activities. However, the two programs, differed in their approaches to professional identity formation. Welch et al focused on developing professional competencies such as attitudes, values and behaviours.[3] Student attainment of these competencies were then used to imply the formation of student professional identity. Professional education should include instruction around professional attitudes, values and behaviours[17], but suggest that theoretical frameworks and pedagogical strategies which specifically address professional identity formation are needed.[1] The PIP in this study directly addressed identity development through the integration of a theory of human identity development, so that teaching and learning pedagogies would be relevant and appropriate.[1]

1.1.4 Factors influencing professional development

While the development of the SDT-based PIP was the primary goal in this study, an opportunity existed to explore the issue of professionalism more broadly. As Hammer observed, student professionalism has many influencing factors[16] and for future iterations of the program, it was deemed worthwhile to investigate student and preceptor perspectives. Chapter 7 explored commencing and graduating students views on the factors affecting their professional development. Themes emerging from the focus groups identified curriculum, pharmacist-educators, and placement/part-time work as having significant impact on their development as professionals. As such, approaches to developing professionalism in

pharmacy students should be diverse, targeting curricular, co-curricular and extra-curricular initiatives.[16] Experiences such as the white coat ceremony is an example of an extra-curricular initiative, which has had a positive impact on PIF (Chapter 8). Preceptors also commented on the need to more closely match student experiences on placement with learning experiences at university and to prepare students for the demands of working in a busy pharmacy (Chapter 9).

STUDY OUTCOMES SUMMARY

- Development of a SDT-based PIP which was positively received by participating students
- Validated Pharm-S measure indicates increase in motivation (autonomy) after 2 years of the program.
- Demonstrated correlation between motivation regulatory styles and professional identity.
- Explored student perceptions of factors influencing their development as professionals.
- Revealed preceptor expectations and experiences of students on placement.

10.3 Limitations

This section includes a summary of the limitations addressed in each published chapter and additional limitations worthy of consideration. They are discussed under the headings below:

Sample size and sample profile

This study was carried out at a single pharmacy school so the data set was limited to the responses of students enrolled in the BPharm at James Cook University. This may restrict the ability to generalise the results, however data were collected from the all levels of BPharm, thus achieving representation from the entire cohort. There was also a marked difference in the gender profile of the two cohorts selected for this study. The 2014 group (non-PIP) was 87.5% female whereas the 2015 group was 55% female. The latter was unusual as the student intake into first year pharmacy typically has more females than

males. The average for the intake into the pharmacy course (2014- 2017) was approximately 60% female, which aligns with the gender % for 2018 (62% F).

Method

This study relied upon a mixed-method approach including survey instruments, focus groups and interview techniques. In addition to engaging students in these research activities, the researcher also had a teaching role in the program, however it was made clear to the students that their expressed views and opinions were in no way linked to grading procedures or outcomes during their course of study. All aspects of the study were approved by the JCU Human Ethics in Research Committee.

Data collection

The very nature of the Pharm-S and the MCPIS-9 required to students to self-rate, communicating individual judgements regarding their motivations for studying pharmacy or their level of professional identity. This obviously has limitations as it is self-reporting in nature, however in this instance the respondent is best positioned to make these assessments and this is the most appropriate approach when exploring issues around motivation and identity.

Another limitation in data collection processes was that the participants in the focus groups were students who volunteered to be part of the study. Volunteers were called from the entire cohort and every effort was made to achieve gender balance within the groups. The acknowledged limitation here is that the more motivated students or those who are eager to please would be more likely to volunteer, leading perhaps to a more positive view of their experience of professional education. It was noted however in the data analysis that the focus group participants felt very comfortable in expressing both positive and negative experiences, including on areas of the course which they felt were unprofessional, or impacted negatively on their professional development.

Another issue which may have impacted the survey results is the observed attrition in response rates across the defined time interval (T=0, 12 and 24 months). The number of responses dropped to 33 by 24 months for the PIP students, still capturing 87% of the student cohort. This is reflective of the natural student attrition observed as students leave the course or transfer to other courses. This may have affected the overall motivation results as it is possible that the students exiting the course would have lacked motivation for their pharmacy studies. Equally however, high achieving students also leave the course to pursue other career pathways, especially in medicine. As the students were not coded individually, it was not possible to confirm this.

Time

The focus of this project was to develop a professional identity program for first year students, to provide multiple opportunities for discussion and engagement around professionalism and professional identity at a very early stage in their course of study. The program was then extended into the second year as it was clear that the students were engaged and were positive about the activities. To see the full benefit of such an initiative it would have been ideal to continue the program deeper into the course and integrate it with the experiential placement component. This however was not possible due to time constraints, so the focus of the outcomes remained on the impact on the first year students.

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11 CHAPTER 11 CONCLUSIONS AND RECOMMENDATIONS

11.1 Conclusion

This study has shown that the introduction of a professional identity development program, delivered using autonomy-supportive teaching, increased student motivation after a period of 24 months. Correlation values indicated a positive association between motivation scores and professional identity scores, confirming the underlying relationship as described by self-determination theory (SDT).

The professional identity program provides educators with a theory-based approach for addressing the evolving concept of professionalism, specifically by enhancing the curriculum to support PIF. It is argued that Self-Determination Theory (SDT) provides a theoretical basis for student professional identity formation, one which is in alignment with core principles of professionalism itself, whilst supporting student basic psychological needs in competence, relatedness and autonomy. The suitability of SDT as a basis for a relevant theory-based approach to PIF, as one which can promote student autonomy and identity formation has clearly been demonstrated.

The use of autonomy-supportive teaching techniques has potential long-term implications for future clinical practice. Being a human-centred approach to instruction, it has been identified as being of particular benefit to health professional students. Medical education research has shown that students who are taught in an autonomy-supportive manner are more likely to provide autonomy-support for their patients, leading to better health outcomes.

11.2 Future directions and recommendations

The focus of this study was the implementation of a professional identity program for first year students, thus establishing an opportunity for early interactions focusing on issues around professionalism and professional identity development. In light of the success of this initiative this study could be taken further by considering the integration of SDT-based teaching approaches into all year levels of the BPharm, thus providing more opportunities to support student competence, relatedness and autonomy in subsequent years of the course. Of interest would also be the implications of this for the professional practice of graduates in their intern year, the year following graduation from the undergraduate course. An extension

of this study could examine the impact of the professional identity program on intern professionalism and identity development.

A significant limitation of this study was that it was data were collected from students enrolled in one Pharmacy school. This work could be expanded to include other undergraduate schools of pharmacy in Australia, thus broadening the student sample population.

Professional identity development is emerging as a topic of interest in other health disciplines such as nursing and dentistry. Further investigations could examine in greater detail current trends of thought in these areas, approaches, and also to consider the effect of interdisciplinary education on PIF.

Future studies could also examine the link between autonomy supportive teaching and autonomy support for patients in pharmacy practice.

- **Recommendation 1**: Introduction of formal instruction around professionalism and professional identity development from the first year of study.
- **Recommendation 2**: Educators to consider strategies to support student competence, relatedness and autonomy in pharmacy curricula.
- **Recommendation 3**: Incorporation of autonomy-supportive teaching in pharmacy programs.

11.3 Researcher reflections

This PhD study has been a period of great growth for me on many levels. I have grown in confidence in my ability as an independent researcher, especially in the area of statistical analysis and am inspired to do more. I have taken great pride in being able to bring an original idea to fruition as a practical solution for early professional education for pharmacy students at James Cook University. Being able to expand my foundation knowledge around educational practice and in the process address a current deficiency in modern pharmacy education within the Australian context, has been very rewarding.

If I was able to revisit the project I would have created more activities (even though timetabling was a significant issue) especially around the area of reflection as I think it is a crucial element in the development of the self, professionally or otherwise. I would have extended the reflection component to the full year. I have also become especially interested in the area of student autonomy and the implications for professional practice and patient-centred care. I think there is room in future work to deliberately and strategically develop student autonomy within pharmacy curricula.

Finally it was worthwhile reflecting on how I could have better prepared myself for PhD study. I realised the value of a small project I completed as part of an on-course masters. I would highly recommend engaging with and manipulating sample research data; collating, analysing and reporting on the data is valuable preparation for the PhD study.

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13 APPENDICES

APPENDIX 1

Developing professional identity

PhD research project

Supervisors:

Professor Beverley Glass

Professor Tarun Sen Gupta

INFORMATION SHEET

PROJECT TITLE: Professional identity in undergraduate pharmacy students.

You are invited to take part in a research project about professional identity development in undergraduate pharmacy students. The study is being conducted by Martina Mylrea, lecturer at the School of Pharmacy and Molecular Sciences, JCU and will contribute to a PhD degree at James Cook University.

If you agree to be involved in the study, you will be invited to complete an online survey which asks you about your attitudes regarding your choice to study to be a pharmacist and your future role as a pharmacist. The survey, with your consent, should only take approximately 15 minutes of your time.

Taking part in this study is completely voluntary and you can stop taking part in the study at any time without explanation or prejudice. You may also withdraw any unprocessed data from the study. Participation or non-participation in this study has no effect on your grades in this subject.

Your responses and identity will be strictly confidential. All survey responses will be de-identified meaning that your student number will be replaced by a code which will prevent the researcher linking your responses to your identity. The coding will be carried out by and administrative assistant in the discipline of Pharmacy. The data from the study will be used in research publications and reports and you will not be identified in any way in these publications.

If you have any questions about the study please contact Martina Mylrea (details below).

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If you have any concerns regarding the ethical conduct of the study, please contact:
Human Ethics, Research Office
James Cook University, Townsville, Qld, 4811
Phone: (07) 4781 5011 (ethics@jcu.edu.au)

APPENDIX 2

Professional identity in undergraduate pharmacy students.
Student survey.

SURVEY GATEWAY

You have been asked to complete this online survey as part of a research project conducted by Martina Mylrea, lecturer at the College of Medicine and Dentistry, JCU. The research project is called Professional identity in undergraduate pharmacy students and is designed to investigate levels of professional identity and motivation levels of students across the degree program. Your responses are entirely voluntary, and you may refuse to complete any part or all of this survey. The data collected from the survey will be de-identified, meaning that there will be no way to connect your responses with you. The survey should take approximately 15 minutes to complete.

	I agree
I agree to participate in this research study on professional identity.	

(Please tick if you agree)

1. Please select "I AGREE" if you agree to participate in this research study on professional identity:

○ I AGREE

APPENDIX 3

PHARM-S SURVEY

PART A

1. Are you male or female?

○ Male ○ Female

2. How old are you? _____

3. What year level of the BPharm are you in (1,2,3,4)? _____

4. What is the highest level of education you have completed? _____

5. Was Pharmacy your first choice on your application to study at university? YES/NO

6. Do you or have you ever worked in a pharmacy? YES/NO

7. Do you have any family members who are pharmacists?

PART B

Think about why you chose and continue to study pharmacy. Do the reasons stated below match your reasons for choosing to study to be a pharmacist? Indicate on the scale the extent to which you agree or disagree with the reason given.

Strongly disagree	Disagree	Undecided	Agree	Strongly agree
☐	☐	☐	☐	☐

1. For the satisfaction it gives me to know more about the practice of pharmacy.

2. For the satisfaction of thinking, acting and behaving as a health professional.

3. For the satisfaction it gives me to know that I will be in a job where I can care for patients and help them manage their health and medication needs.

4. For the satisfaction of being placed in a position of trust and responsibility.

5. For the satisfaction of learning about new developments or innovations in pharmacy practice.

6. For the satisfaction of learning and mastering new skills.

7. Because it is interesting to learn how I can improve and develop, keeping up to date with the latest advancements.

8. Because studying pharmacy reflects the essence of whom I am.

9. Because it is consistent with my personal values and principles such as honesty and integrity.

10. Because studying to be a pharmacist is fulfilling a long-term career goal.

11. Because I have chosen pharmacy as a way to develop myself.

12. Because it is personally important to me to practice as a pharmacist.

13. Because I think it is a good way to develop aspects of myself that I value.

14. Because studying pharmacy makes me feel good about myself.

15. Because if I was not studying pharmacy I would not feel worthwhile.

16. Because it allows me to be well regarded by people that I know.

17. For the prestige of being a pharmacist

18. For the financial rewards being a pharmacist will bring.

19. Because I think others would disapprove of me if I did not.

20. I used to have good reasons for studying pharmacy but now I am asking myself if I should continue.

21. So that others will praise me for what I do.

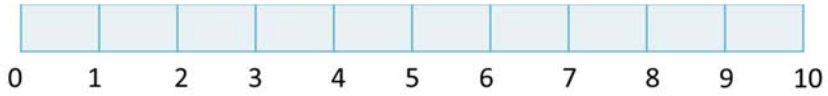
22. It is not clear to me anymore; I don't really think my place is in pharmacy.

PART C

Indicate on the scale provided the extent to which you agree with the following statements:

Strongly disagree	Disagree	Undecided	Agree	Strongly agree
☐	☐	☐	☐	☐

1. I feel I am a member of the pharmacy profession.
2. I feel I have strong ties with members of the pharmacy profession
3. I am often ashamed to admit that I am studying for the pharmacy profession
4. I find myself making excuses for belonging to the pharmacy profession.
5. I try to hide that I am studying to be part of the pharmacy profession.
6. I am pleased to belong to the pharmacy profession.
7. I can identify positively with members of the pharmacy profession.
8. Being a member of the pharmacy profession is important to me.
9. I feel I share characteristics with other members of the pharmacy profession.
10. Indicate on the scale below your sense of professional identity:
    (0 being very low and 10 being very high.)



NB: For brevity and ease of reading the formatting of this survey has been summarised.

APPENDIX 3a

Original survey instruments (validated)

SMS-II[1] (Pelletier et al, 2013)

Scale
Intrinsic
Because it gives me pleasure to learn more about my sport.
Because I find it enjoyable to discover new performance strategies.
Because it is very interesting to learn how I can improve.
Integrated
Because practicing sports reflects the essence of whom I am.
Because participating in sport is an integral part of my life
Because through sport, I am living in line with my deepest principles
Identified
Because I have chosen this sport as a way to develop myself
Because I found it is a good way to develop aspects of myself that I value.
Because it is one of the best ways I have chosen to develop other aspects of myself
Introjected
Because I would feel bad about myself if I did not take the time to do it
Because I feel better about myself when I do
Because I would not feel worthwhile if I did not
External
Because people I care about would be upset with me if I didn't
Because I think others would disapprove of me if I did not
Because people around me reward me when I do
Amotivated
I used to have good reasons for doing sports, but now I am asking myself if I should continue
So that others will praise me for what I do
It is not clear to me anymore; I don't really think my place is in sport

MCPIS-9[2] (Worthington et al, 2012)

Scale
I feel I am a member of the pharmacy profession
I feel I have strong ties with members of the pharmacy profession
I am often ashamed to admit that I am studying for the pharmacy profession
I find myself making excuses for belonging to the pharmacy profession
I try to hide that I am studying to be part of the pharmacy profession
I am pleased to belong to the pharmacy profession
I can identify positively with members of the pharmacy profession
Being a member of the pharmacy profession is important to me
I feel I share characteristics with other members of the pharmacy profession

REFERENCES

1. Pelletier LG, Rocchi MA, Vallerand RJ, Deci EL, Ryan RM. Validation of the revised sport motivation scale (SMS-II). *Psychol Sport Exerc.* 2013;14(3):329-341.
2. Worthington M, Salamonson Y, Weaver R, Cleary M. Predictive validity of the Macleod Clark professional identity scale for undergraduate nursing students. *Nurse Educ Today.* 2012;33(3):187-191.

APPENDIX 4

Student Professional identity Sessions Evaluation

Please select your gender.

○	○
Male	Female

What is your age? _____

Please indicate (tick) the extent to which you agree or disagree with the statements below by ticking the appropriate circle.

1. It has been useful to think about issues of professionalism as part of our studies in first year.

○	○	○	○	○
Strongly disagree	Disagree	Undecided	Agree	Strongly agree

2. I have a greater understanding of the importance of professionalism to the practice of pharmacy.

○	○	○	○	○
Strongly disagree	Disagree	Undecided	Agree	Strongly agree

3. I feel that the professional identity sessions improved my sense of professional identity.

○	○	○	○	○
Strongly disagree	Disagree	Undecided	Agree	Strongly agree

4. I have a greater understanding of the role of the pharmacist.

○	○	○	○	○
Strongly disagree	Disagree	Undecided	Agree	Strongly agree

5. I enjoyed the professional identity sessions as part of PC1004.

○	○	○	○	○
Strongly disagree	Disagree	Undecided	Agree	Strongly agree

6. I feel that my professional identity is influenced by:

The pharmacist's standing in the community.

○	○	○	○	○
Strongly disagree	Disagree	Undecided	Agree	Strongly agree

Public perception of pharmacists.

○	○	○	○	○
Strongly disagree	Disagree	Undecided	Agree	Strongly agree

Studying a health related field.

○	○	○	○	○
Strongly disagree	Disagree	Undecided	Agree	Strongly agree

Family members.

○	○	○	○	○
Strongly disagree	Disagree	Undecided	Agree	Strongly agree

Placement experiences.

○	○	○	○	○
Strongly disagree	Disagree	Undecided	Agree	Strongly agree

Academic staff: lecturers

○	○	○	○	○
Strongly disagree	Disagree	Undecided	Agree	Strongly agree

Extemporaneous dispensing practicals.

○	○	○	○	○
Strongly disagree	Disagree	Undecided	Agree	Strongly agree

The professional identity sessions in PC1004.

○	○	○	○	○
Strongly disagree	Disagree	Undecided	Agree	Strongly agree

My part-time job.

○	○	○	○	○
Strongly disagree	Disagree	Undecided	Agree	Strongly agree

Are there any factors which you feel influence your professional identity (either positively or negatively) which were not listed above. Please explain below.

APPENDIX 5

FOCUS GROUP
LEVEL 4 STUDENTS FOCUS GROUP

INFORMED CONSENT FORM

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FOCUS GROUP QUESTIONS

Good afternoon everyone. Thank you for taking the time to meet to discuss this important topic. There are no right or wrong answers, I am interested in your ideas, experiences and opinions and all are valuable. This focus group will last approximately 45 minutes.

1. I'd like to start by asking you what you understand by the term professionalism in pharmacy.
2. Is there a difference between student professionalism and pharmacist professionalism?
3. Where in the course do you feel you have been taught professionalism?
4. When do you feel is the best time to teach professionalism?
5. How can teaching/academic staff encourage and support your professional development?
6. Comment on the overall culture of the school with regards to professionalism.
7. Are there any outside factors which affect your professionalism?
8. What are the challenges do you see in maintaining a high level of professionalism?
9. Do you think there is a difference between professionalism and professional identity?
10. Being a Pharmacist involves the development of a professional identity: where do you think your sense of identity is at this point? Low – medium – high
11. What do you think the purpose of the white coat ceremony is?
12. Do you think the white coat ceremony is an appropriate inclusion in the BPharm?
13. When do you think the white coat ceremony should be held?
14. Do you agree with the use of an oath as part of the white coat ceremony? Why/Why not?
15. How do you think the white coat ceremony contributes to your sense of professional identity?

APPENDIX 6

INFORMATION SHEET

PROJECT TITLE: Perceptions of the white coat ceremony and professional identity in undergraduate pharmacy students.

You are invited to take part in a research project about professional identity development in undergraduate pharmacy students. The study is being conducted by Martina Mylrea, lecturer at the College of Medicine and Dentistry, JCU and will contribute to a PhD degree at James Cook University.

If you agree to be involved in the study, you will be invited to participate in a focus group which will ask you about your opinions and perceptions regarding the white coat ceremony and your views on professional development. The survey, with your consent, should only take approximately 15 minutes of your time.

Participation in this study is completely voluntary and you can stop taking part in the study at any time without explanation or prejudice. Choosing to either take part or not take part in this study will have no impact on your marks or assessments.

The data from the study will be used in research publications and reports. You will not be identified in any way in these publications as all responses will be anonymous.

If you have any questions about the study please contact Martina Mylrea (details below).

Principal Investigator:
Martina Mylrea
College of Medicine and Dentistry
James Cook University
Phone:
Email: martina.mylrea@jcu.edu.au

Supervisor:
Professor Beverley Glass
College of Medicine and Dentistry
James Cook University
Phone:
Email: beverley.glass@jcu.edu.au

If you have any concerns regarding the ethical conduct of the study, please contact:
Human Ethics, Research Office
James Cook University, Townsville, Qld, 4811
Phone: (07) 4781 5011 (ethics@jcu.edu.au)

Student survey: White Coat Ceremony

PART A

1. Are you male or female?

○ Male ○ Female

2. How old are you? _____
3. What year level of the BPharm are you in (1,2,3,4)? _____
4. What is the highest level of education you have completed? _____
5. Was Pharmacy your first choice on your application to study at university? YES/NO
6. Do you work part time pharmacy? YES/NO
7. Do you have any family members who are pharmacists?

PART B

Please read the following statements regarding the White Coat Ceremony (WCC). Indicate on the scale the extent to which you agree or disagree with the statements.

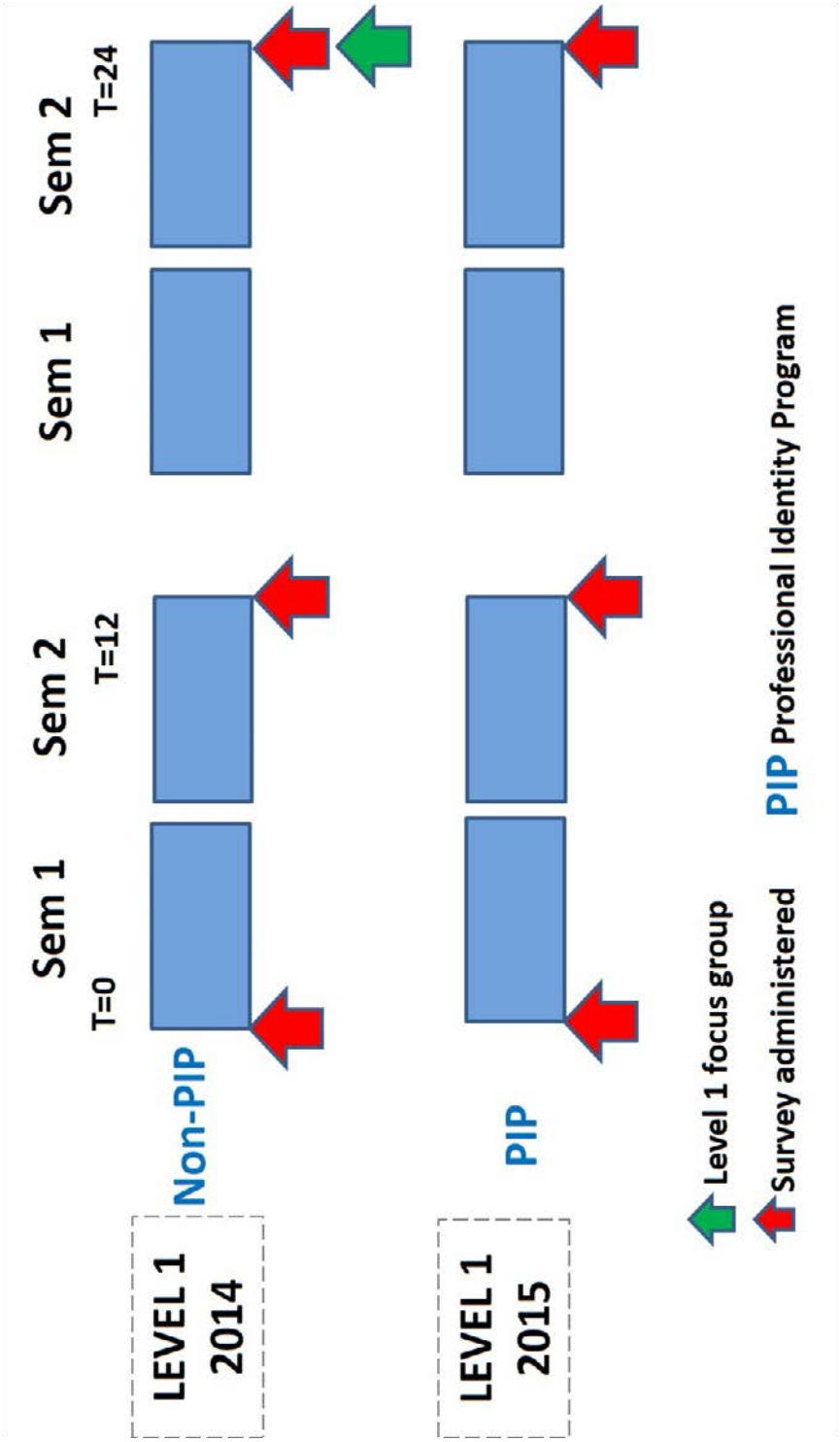
Strongly disagree	Disagree	Undecided	Agree	Strongly agree
☐	☐	☐	☐	☐

1. The white coat ceremony is an important recognition of my entry into the profession of pharmacy.
2. The white coat ceremony is an important part of my experience as a student of the BPharm.
3. The white coat ceremony has a positive effect on my sense of professionalism.
4. The white coat ceremony makes me feel a part of the pharmacy profession.
5. The white coat ceremony gives me a greater sense of professional identity.
6. The white coat ceremony has no effect on me at all.
7. I am proud to have received my white coat.

PART C

1. When do you think the white coat ceremony should be held?
2. What do you think the purpose of the white coat ceremony is?
3. Do you agree with the use of an oath as part of the white coat ceremony? Why/Why not?

APPENDIX 7


Sem 1
T=0
Sem 2
T=12
Sem 1
Sem 2
T=24
Non-PIP
PIP
LEVEL 1
2014
LEVEL 1
2015
Level 1 focus group
Survey administered
PIP Professional Identity Program

APPENDIX 8

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APPENDIX 9

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APPENDIX 10

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APPENDIX 11

PROFESSIONAL IDENTITY

PROFESSIONAL DEVELOPMENT : FIRST YEAR

A professional development module of PC1004: Introduction to pharmacy practice and pharmaceutical sciences. A subject in the first year of the BPharm at James Cook University

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PROFESIONAL IDENTITY

SESSION		TASK
ONE	Introduction Professionalism	Group discussion PBA Code of Conduct
TWO	Who is the pharmacist? Community perceptions of the pharmacist. Professional identity Pharmacist in Focus – community pharmacy Developing my professional identity	Interview task Discussion Article
THREE	Pharmacist and compounding The APF – then and now	APF task
FOUR	Pharmacist on a mission! My mission statement	Pebble Pad task

SESSION 1: INTRODUCTION

GROUP DISCUSSION:


What is professionalism?


What does professionalism mean to you?


Thinking about the profession of pharmacy, what does the term professionalism mean to you?


Why do you think being professional is important to a pharmacist?

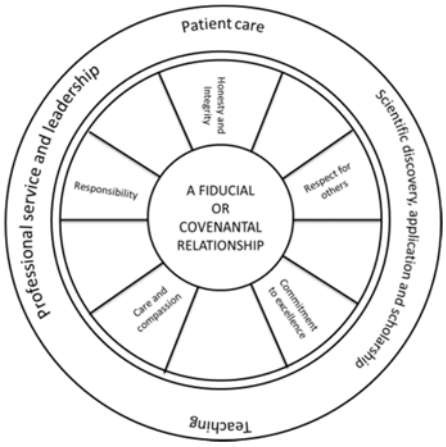

How would you know if a pharmacist is being professional or unprofessional?


Can you think of an example of professional/unprofessional conduct you have experienced?


When does someone become a professional?

PROFESSIONALISM

Different countries have various ways of explaining what professionalism means to pharmacists. Different ways of explaining professionalism in pharmacy:



Understanding professionalism in pharmacy [62]

12 Table 1 Professionalism Traits as identified by AACP[61]

14 Knowledge and skills
15 A commitment to self-improvement and life-long learning.
16 A service minded orientation
17 Pride in the profession and a dedication to advance its value to society
18 Create a covenantal relationship with those served
19 Alertness, creativity, initiative and innovation
20 Conscientiousness, integrity and trustworthiness
21 Flexibility and punctuality
22 Accountability for his/her performance
23 Ethically sound decision making and moral behaviour
24 Leadership

Pharmacy Board of Australia: Code of Conduct.

Pharmaceutical Society of Australia: Code of Ethics.

CODE OF CONDUCT

Pharmacy Board of Australia: Code of Conduct.

Read section **1.2 – Professional values and qualities** in the Pharmacy Board of Australia Code of Conduct. (handout)

Summarise below, as dot points, those values and qualities which will be central to your practice as a pharmacist:

CODE OF ETHICS – Summary of principles

AREA OF FOCUS	PRINCIPLE AND SUPPORTING TEXT
THE CONSUMER	**1. A pharmacist recognises the health and wellbeing of the consumer as their first priority.** A pharmacist will utilise expert knowledge and provide care in a compassionate and professional manner. **2. A pharmacist pays due respect for the autonomy and rights of consumers and encourages consumers to actively participate in decision-making.** A pharmacist will, through informed consent, pay due respect to the dignity and privacy of the consumer including: respecting the consumer's individuality; respecting their right to refuse advice or treatment; and ensuring the privacy and confidentiality of the consumer and information provided.
THE COMMUNITY	**3. A pharmacist upholds the reputation and public trust of the profession.** A pharmacist will not abuse the trust and respect of individuals and society. **4. A pharmacist acknowledges the professional roles in and responsibilities to the wider community.** A pharmacist will ensure responsible and accountable control and supply of therapeutic goods and contribute to public health and enhancing the quality use of medicines.
THE PHARMACY PROFESSION	**5. A pharmacist demonstrates a commitment to the development and enhancement of the profession.** A pharmacist will commit to advancing the profession through involvement in activities including: training staff; engaging in teaching; acting as a preceptor; mentoring students, interns and colleagues; engaging in discussions and participating in initiatives to develop the profession; and showing professional leadership. **6. A pharmacist maintains a contemporary knowledge of pharmacy practice and ensures health and competence to practise.** A pharmacist will recognise the importance of lifelong learning and self-development and their impact on professional competence. Further, a pharmacist is responsible for ensuring personal health to practise and supporting health professional colleagues in this regard. **7. A pharmacist agrees to practise only under conditions which uphold the professional independence, judgement and integrity of themselves or others.** A pharmacist will exercise professional autonomy, objectivity and independence and manage actual and potential situations of conflict of interest.
BUSINESS PRACTICES	**8. A pharmacist conducts the business of pharmacy in an ethical and professional manner.** A pharmacist will ensure business practices are conducted primarily in the best interest of the consumer, paying due respect to colleagues, while upholding the reputation of the profession.
OTHER HEALTH CARE PROFESSIONALS	**9. A pharmacist works collaboratively with other health professionals to optimise the health outcomes of consumers.** A pharmacist will consult and work cooperatively with other health care professionals to achieve expected or optimal health outcomes for the consumer.

Code of Ethics for Pharmacists 2011[189]. Pharmaceutical Society of Australia Ltd. p.4

SESSION 2: WHO IS THE PHARMACIST?

INTERVIEW QUESTIONS

1. What do you think is the main role of a pharmacist?

2. What professional qualities do you think a pharmacist should have?

3. What do you think is the most important job of a pharmacist?

4. Why do you think pharmacists are important to the health of people in society?

PROFESSIONAL IDENTITY

Becoming a professional in any area is more than adhering to identified behaviours or conduct.

There is a transition involved in you as a student of pharmacy becoming a practicing pharmacist.

What experiences will help you travel this important journey towards practicing professional?

Developing a professional identity is part of this learning experience.

I AM A PHARMACIST

THINKING, ACTING AND BEING A PHARMACIST

IDENTITIES OF THE PHARMACIST?

Research looking into the various identities of pharmacists uncovered nine different identities listed in the table below. Place a tick next to the identities which you think most reflect what a pharmacist does. In the last column write down how you think a pharmacist fulfils this role.

The scientist		Trained in science. Underpins practice. Scientific nature of the work. Analytical, logical, evidence based.
The clinical practitioner		Applying knowledge about medicines to a person's condition. Talking with patients about symptoms/examining/treatment Accessible to patients.
The medicines adviser		A resource for colleagues. General medicines expert Eg patient with multiple conditions on a cardiology ward. Checking for errors Knowledge of relevant reference sources
The social carer		Trusted community figure. Getting to know patients well.
The medicines maker		Older perception
The medicines supplier		Source of medications
The business person		Own business Own boss
The treater		Accessibility. First point of call
The health promoter		Smoking cessation, weight loss, supplements.
The manager		Running of a pharmacy

Adapted from research into pharmacist identites[118]

Describe a pharmacist in five words!!

THE COMMUNITY PHARMACIST

rural sig

Rural pharmacists support greater professional practice

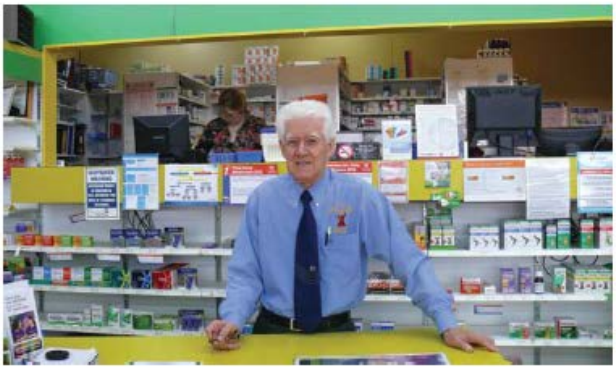
By Lindy Swain

This month we feature a rural NSW pharmacist and take a look at some of his daily challenges. He believes discount pharmacies are a danger to the profession.

Michael Timmins has been a community pharmacist in Condobolin since 1969. Condobolin has a population of about 3,500 and is a one pharmacy town. It is an agricultural centre situated in Central West NSW on the Lachlan River, approximately 500 kilometres west of Sydney and 100 kilometres from other regional centres. Having endured 10 years of drought the farming community is at last reaping some benefits from recent rains and improved cattle and sheep prices.

Despite improved farming conditions, drought, financial pressure and social isolation have taken their toll, with mental illness and suicide still common. Michael states that as a pharmacist he often needs to provide a 'caring ear'. Diabetes and cardiovascular disease are also growing concerns. Male farmers are gradually starting to talk a little more about their health but many still prefer to 'drown their sorrows' rather than share their concerns with health professionals. Michael believes that professional pharmacy services are the industry's future and is looking forward to implementing the new 5CPA professional programs.

Condobolin is currently well serviced with health professionals and pharmacists. It hasn't always been so. In the past Condobolin has often suffered a scarcity of doctors, making pharmacy the first port of call for health assistance. Previously Michael had to recruit overseas pharmacists to assist in his busy pharmacy but he now has a partner and employs two young local pharmacists.



'This makes days off, holidays and attending CPD events possible. It also enables the provision of HMR and other professional pharmacy services,' Michael said.

Condobolin has a large Aboriginal population. In the Lachlan area of western NSW 8.7% of the population identify as Aboriginal. This compares to a state of average of 2.1%. Michael sees low levels of medication adherence amongst many of his Aboriginal patients. He believes he needs greater cultural understanding to be able to better assist some of his Aboriginal clients.

'It was not until I started working more closely with my local mob as a result of the University of Sydney program *Assisting Local Aboriginal Health Workers in the Quality Use of Medicines for Cardiovascular Disease*, in 2007, that I started to realise how much more I needed to learn about their cultural beliefs and views of medicine. The program contained some cultural awareness training, but I would like to do more,' he said.

Michael's main challenges as a rural pharmacist are the timely delivery of pharmaceuticals and increasing competition from discount mail order pharmacies. With no other pharmacy in town he cannot borrow stock, so has to keep higher stock levels than if in an urban setting. Michael says, 'patients expect me to be here when they need health information. The pharmacy plays an integral role in the health care of Condobolin's population'.

If you would like to discuss your rural pharmacy issues please contact lindy.swain@psa.org.au. Comments can also be posted on the PSA Rural Special Interest Group (SIG) forum page. The Rural SIG forum is a great place to learn what is going on in rural pharmacy, and to have your say! So have a look. Log in at http://forum.psa.org.au

Lindy Swain is PSA's Director, Rural policy. She is based at Lismore in NSW.

Vol. 30 – August '08

What identities are crucial to Mr Timmins' role as a community pharmacist?

SESSION 3:

APF: THEN AND NOW

APF exercise

Old and new APFs comparison exercise

Counselling video

SUSPENSIONS IN PRACTICE

SCENARIO

Charlie is a 6yr old boy who has recently been diagnosed with ADHD (Attention Deficit Hyperactvity Disorder). For his initial treatment his doctor has prescribed him dexamphetamine sulphate 2.5mg to be taken in the morning. Charlie is unable to take a tablet. The pharmacy would [illegible] Charlie's tablets into a

BP 2014 (Dexamphetamine Sulfate). A white or almost white, odourless or almost odourless, crystalline powder. Freely soluble in water; slightly soluble in alcohol; practically insoluble in ether.

Dexamphetamine sulphate tablet (25mg)	2
Carboxymethyl cellulose	40%
Syrup	20%
Flavourant	2dps
Methyl hydroxybenzoate solution	0.5mL
Water to	50mL

Before compounding:

Weight of one tablet: _____ g

Quantity of active in one tablet: _____ mg

Quantity of excipients _____ mg

Procedure:

1. Crush two dexamphetamine tablets in a porcelain mortar. Reduce to a fine powder.
2. Add the carboxymethyl cellulose (suspending agent) and form a smooth paste. (This step will suspend the tablet material)
3. Add the syrup and combine well.
4. Transfer to a 50mL conical measure.
5. Add the flavouring
6. Add the preservative
7. Make to volume. Stir to combine.
8. Transfer to a 100mL glass bottle.

1. What percentage of each tablet is active drug?

_____

_____

_____

_____

2. What dose of dexamethasone suspension should Charlie's Mum give to him each morning?

_____

_____

SESSION 4:

PHARMACIST OATH

An Oath

I will .....

I will .....

I will .....

I will .....

I will .....

AN OATH

Australian Citizenship pledge

From this time forward
I pledge my loyalty to Australia and its people,
whose democratic beliefs I share,
whose rights and liberties I respect,

Swearing in for parliament

I, A.B., do swear that I will be faithful and bear true allegiance to Her Majesty Queen Victoria, Her heirs and successors according to law. So Help Me God!

Naval Oath

..... swear that I will well and truly serve His/Her Majesty (Queen Elizabeth the Second) Her Heirs and Successors according to law, as a seaman in the Permanent Naval Forces for the period of ..... years ..... days, or until my service is sooner lawfully terminated, that I will resist Her enemies and that in all matters appertaining to my service I will faithfully discharge my duty

The Hippocratic Oath, taken by physicians: (exerpt)

"I swear to fulfill, to the best of my ability and judgment, this covenant:

I will respect the hard-won scientific gains of those physicians in whose steps I walk, and gladly share such knowledge as is mine with those who are to follow.

I will apply, for the benefit of the sick, all measures [that] are required, avoiding those twin traps of overtreatment and therapeutic nihilism.

I will remember that there is art to medicine as well as science, and that warmth, sympathy, and understanding may outweigh the surgeon's knife or the chemist's drug.

I will not be ashamed to say "I know not," nor will I fail to call in my colleagues when the skills of another are needed for a patient's recovery.

I will respect the privacy of my patients, for their problems are not disclosed to me that the world may know. Most especially must I tread with care in matters of life and death. If it is given me to save a life, all thanks. But it may also be within my power to take a life; this awesome responsibility must be faced with great humbleness and awareness of my own frailty. Above all, I must not play at God."

Declaration of Geneva – World Medical Association.

I solemnly pledge myself to consecrate my life to the service of humanity;
I will give my teachers the respect and gratitude which is their due;
I will practice my profession with conscience and dignity;
The health of my patient will be my first consideration;
I will respect the secrets which are confided in me, even after the patient has died;
I will maintain by all the means in my power, the honor and the noble traditions of the medical profession;
My colleagues will be my brothers;
I will not permit considerations of religion, nationality, race, party politics or social standing to intervene between my duty and my patient;
I will maintain the utmost respect for human life

1.2 Professional values and qualities

While individual practitioners have their own personal beliefs and values, there are certain professional values on which all practitioners are expected to based their practice. These professional values apply to the practitioner's conduct regardless of the setting, including in person and electronically, e.g. social media, e-health etc.

Practitioners have a duty to make the care of patients or clients their first concern and to practise safely and effectively. They must be ethical and trustworthy. Patients or clients trust practitioners because they believe that, in addition to being competent, practitioners will not take advantage of them and will display qualities such as integrity, truthfulness, dependability and compassion. Patients or clients also rely on practitioners to protect their confidentiality.

Practitioners have a responsibility to protect and promote the health of individuals and the community.

Good practice is centred on patients or clients. It involves practitioners understanding that each patient or client is unique and working in partnership with patients or clients, adapting what they do to address the needs and reasonable expectations of each person. This includes cultural awareness: being aware of their own culture and beliefs and respectful of the beliefs and cultures of others, and recognising that these cultural differences may

Effective communication in all forms underpins every aspect of good practice.

Professionalism embodies all the qualities described here and includes self-awareness and self-reflection. Practitioners are expected to reflect regularly on whether they are practising effectively, on what is happening in their relationships with patients or clients and colleagues, and on their own health and wellbeing. They have a duty to keep their skills and knowledge up to date, refine and develop their clinical judgement as they gain experience, and contribute to their profession.

Practitioners have a responsibility to recognise and work within the limits of their competence and scope of practice. Scopes of practice vary according to different roles; for example, practitioners, researchers and managers will all have quite different competence and scopes of practice. To illustrate, in relation to working within their scope of practice, practitioners may need to consider whether they have the appropriate qualification sand experience to provide advice on over the counter and scheduled medicines, herbal remedies, vitamin supplements, etc.

Practitioners should be committed to safety and quality in healthcare (the Australian Commission on Safety and Quality in Health Care is at www.safetyand quality.gov.au

CODE OF ETHICS FOR PHARMACISTS – SUMMARY OF PRINCIPLES

Pharmaceutical Society of Australia

AREA OF FOCUS	PRINCIPLE AND SUPPORTING TEXT
THE CONSUMER	**1. A pharmacist recognises the health and wellbeing of the consumer as their first priority.** A pharmacist will utilise expert knowledge and provide care in a compassionate and professional manner. **2. A pharmacist pays due respect for the autonomy and rights of consumers and encourages consumers to actively participate in decision-making.** A pharmacist will, through informed consent, pay due respect to the dignity and privacy of the consumer including: respecting the consumer's individuality; respecting their right to refuse advice or treatment; and ensuring the privacy and confidentiality of the consumer and information provided.
THE COMMUNITY	**3. A pharmacist upholds the reputation and public trust of the profession.** A pharmacist will not abuse the trust and respect of individuals and society. **4. A pharmacist acknowledges the professional roles in and responsibilities to the wider community.** A pharmacist will ensure responsible and accountable control and supply of therapeutic goods and contribute to public health and enhancing the quality use of medicines.
THE PHARMACY PROFESSION	**5. A pharmacist demonstrates a commitment to the development and enhancement of the profession.** A pharmacist will commit to advancing the profession through involvement in activities including: training staff; engaging in teaching; acting as a preceptor; mentoring students, interns and colleagues; engaging in discussions and participating in initiatives to develop the profession; and showing professional leadership. **6. A pharmacist maintains a contemporary knowledge of pharmacy practice and ensures health and competence to practise.** A pharmacist will recognise the importance of lifelong learning and self-development and their impact on professional competence. Further, a pharmacist is responsible for ensuring personal health to practise and supporting health professional colleagues in this regard. **7. A pharmacist agrees to practise only under conditions which uphold the professional independence, judgement and integrity of themselves or others.** A pharmacist will exercise professional autonomy, objectivity and independence and manage actual and potential situations of conflict of interest.
BUSINESS PRACTICES	**8. A pharmacist conducts the business of pharmacy in an ethical and professional manner.** A pharmacist will ensure business practices are conducted primarily in the best interest of the consumer, paying due respect to colleagues, while upholding the reputation of the profession.
OTHER HEALTH CARE PROFESSIONALS	**9. A pharmacist works collaboratively with other health professionals to optimise the health outcomes of consumers.** A pharmacist will consult and work cooperatively with other health care professionals to achieve expected or optimal health outcomes for the consumer.

REFLECTION

Choose from one of the following activities from this semester:

 Interview questions (Session 1)

 Article discussion (Session 2)

 APF session/role play (Session 3)

 Mission statement (Session 4)

Write a short reflection on how the activity you chose influenced your ideas about pharmacy professionalism.

Hand in at the end of semester with your pharmacy placement booklet.