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Design, delivery, and evaluation of a
preceptor training program for community pharmacists
at a regional Australian University

Thesis submitted by

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in August 2023

For the degree of

Doctor of Philosophy

at

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Statement of the contribution of others

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Financial support was provided through the College of Medicine and Dentistry, which enabled me to attend the Lifelong Learning in Pharmacy conference in Dublin in 2021 and the upcoming International Pharmacy Federation (FIP) conference in Brisbane. This resource funding also supported the use of a transcription service (Transcription Divas) for interview transcription and the purchase of several preceptor training publications.

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Positioning the researcher

In 1999, the James Cook University (JCU) Pharmacy School was launched, being only the second Pharmacy School in Queensland and the first in North Queensland, with the aim of providing a pharmacy workforce for North Queensland. As a pharmacist of approximately 20 years of experience in pharmacy practice, I made the decision to join JCU as a pharmacist tutor in 2000, with a desire to give back to the profession through the training and development of future pharmacists. This was a great decision and led me to progress further into the academic world and become a part-time lecturer in 2008. I found this to be an enjoyable and rewarding role, as I was able to maintain my involvement in the practice and continue to provide a link between theory and practice for our pharmacy students, whilst also bringing up my four children.

In 2014, to further develop my academic profile and satisfy my growing interest in research, I enrolled in a Master of Pharmacy research degree, conducting research on Tutor (sessional staff) Training. This study combined my passion for teaching and my aspiration to increase the work-readiness of our pharmacy students. Having previously been a JCU tutor, this project seemed ideally suited to my skills and knowledge. The outcome of this research was the development of a tutor training program tailored to meet the needs of JCU pharmacist tutors.

Five years later in 2019, after 11 years in academia educating pharmacy students, and with some encouragement from my senior colleague and now PhD supervisor, my interest moved from tutors to preceptors. With the recent focus on work-integrated learning within the health professions and an increase in the length and diversity of experiential placements, the training and development of preceptors had become topic of great interest to universities worldwide, with the aim being to provide quality placement experiences. There are many similarities between tutors and preceptors, who both aim to strengthen the link between theory and practice. There are also some key differences. While tutors bring the practice to the university environment, preceptors bring students from the university to the practice environment. While tutors are paid for their work, preceptors are voluntarily contributing their time and expertise to develop the next generation of pharmacists. Having been a preceptor myself, I have a clear understanding of the barriers and enablers to good precepting and this research on preceptor training was therefore felt to be a 'perfect fit' for me. Hence, here I am in 2023 in the final stages of this PhD study, reflecting on my position as a researcher in this field.

With my history of involvement in pharmacy practice and previous roles as a preceptor and a tutor, I consider this research to be conducted from an emic or insider perspective. However, in my current position as an academic and researcher, I acknowledge my responsibilities to consider both sides of the emic/etic divide. (Beals et al 2020) In this respect, as an academic as well as a researcher at JCU, the issue of researcher bias must be considered, particularly given that I was known to several of the participants in the study. As this program aimed to develop and support preceptors, this bias was minimal, since all participants stood to benefit from the study.

The substantial benefits of my position to this study should also be recognized. My current role as an academic, as well as my past roles as a practising pharmacist, tutor and preceptor have allowed me to develop a deeper understanding of the issues affecting study participants and this was a strong advantage to the investigations and a positive influence in the final design of the preceptor training program.

This research has led to the design, delivery and evaluation of a preceptor training program and is only the beginning of the drive for change in preceptor development and training at JCU. With my unique understanding of the role of preceptors in experiential placements, and their ideal skills and attributes, my future goal will be to ensure that preceptor training programs are continually adapted to meet the needs of preceptors and promote high quality placement experiences, and that the university works collaboratively with preceptors to ensure the quality of our pharmacy graduates.

Reference

Beals F, Kidman J, Funaki H. Insider and Outsider research: Negotiating Self at the Edge of the Emic/Etic Divide. *Qual. Inq.* 2020; 26 (6) 593-601. doi: 10.1177/1077800419843950

Publications in support of this thesis

Knott G, Mylrea M, Glass B. A Scoping Review of Pharmacy Preceptor Training Programs. *American Journal of Pharmaceutical Education* 2020; 84 (10) Article 8039
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Knott G, Mylrea M, Glass B. What do preceptors want? A mixed methods study exploring pharmacist preceptor perceptions of their training and support needs at a regional Australian university. *Pharmacy Education* 2022;22 (4) 7-18 doi:10.46542/pe.2022.224.718

Knott G, Mylrea M, Glass B. Pharmacy student perceptions of the roles and attributes of pharmacist preceptor in Australia. *Pharmacy* 2022; 10 (6) 169
doi:10.3390/pharmacy10060169

Knott G, Mylrea M, Glass B. Perceptions of academic staff of pharmacist preceptor roles, skills, attributes, and training requirements: a qualitative report. *Pharmacy Education* 2023; 23 (1), 554-559. doi: 10.46542/pe.2023.231.554559

Knott G, Mylrea M, Glass B. Pharmacy preceptor training: addressing the challenges of clinical supervision in community practice. *International Journal of Pharmacy Practice* 2023, riad050, doi.org/10.10.93/ijpp/riad050

Knott G, Mylrea M, Glass B. How should we prepare our pharmacist preceptors? Design, development, and implementation of a training program in a regional Australian university. *Pharmacy* 2023; 11(5): 148. doi: 10.3390/pharmacy11050148

Knott G, Mylrea M, Glass B. Pharmacist and student evaluation of a preceptor training program in a regional Australian university: a multi-method study. Submitted to *BMC Medical Education*, September 2023.

Conferences, Presentations and Awards

Conferences

Supporting our pharmacist preceptors. Small group workshop, **Life-Long Learning in Pharmacy Conference (LLLP)** (Virtual), Dublin, June 2021

Presentations

Linking theory to practice: Design, development and implementation of a pharmacist preceptor training program in a regional Australian University. **International Pharmacy Federation Conference (FIP)** Brisbane, September 2023 – Poster Presentation

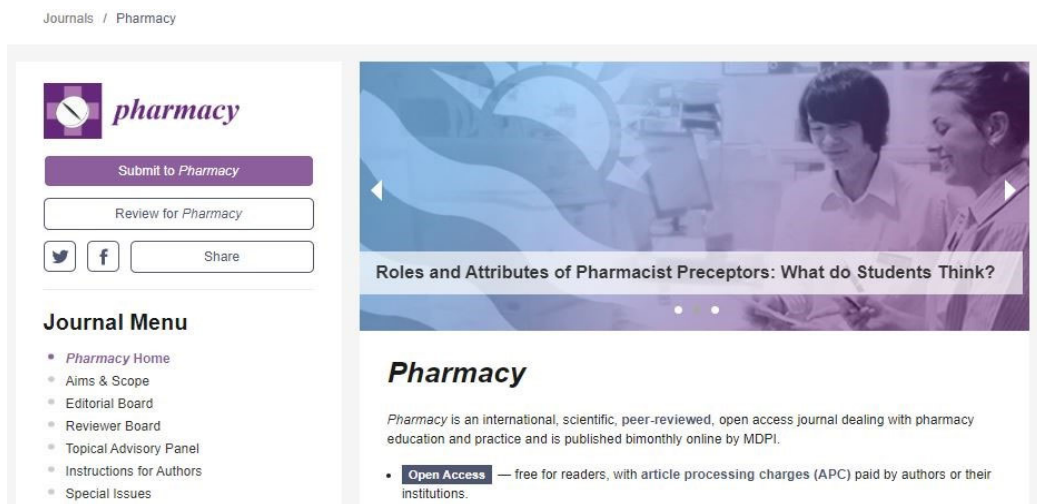
Awards

Theory to Practice – Strengthening the Link. **James Cook University College of Medicine and Dentistry, 3 Minute Thesis** 2022, Second Place.

Feature article

The following article was featured as the Title Story for **Pharmacy** in January-February 2023
“Pharmacy Student Perceptions of the Roles and Attributes of Pharmacist Preceptors in Australia”

Journals / Pharmacy



The screenshot displays the Pharmacy journal website interface. On the left, there is a sidebar with the journal logo, a 'Submit to Pharmacy' button, a 'Review for Pharmacy' button, and social media sharing options for Twitter and Facebook. Below this is a 'Journal Menu' with links to Pharmacy Home, Aims & Scope, Editorial Board, Reviewer Board, Topical Advisory Panel, Instructions for Authors, and Special Issues. The main content area features a large banner image of two people in a pharmacy setting, with the title 'Roles and Attributes of Pharmacist Preceptors: What do Students Think?' overlaid. Below the banner, the journal title 'Pharmacy' is displayed, followed by a brief description: 'Pharmacy is an international, scientific, peer-reviewed, open access journal dealing with pharmacy education and practice and is published bimonthly online by MDPI.' A bullet point highlights 'Open Access' as free for readers, with article processing charges (APC) paid by authors or their institutions.

Abstract

Introduction

The changing landscape of pharmacy practice and the move from a predominantly supply function to comprehensive pharmaceutical care, has resulted in an increased requirement for work-ready pharmacy graduates, which has prompted an increase in experiential placements within the university curriculum. This has highlighted the important role of preceptors, who as practising pharmacists, provide a vital link between theory and practice by acting as a role model, educator, mentor and assessor for pharmacy students during their experiential placements, thus significantly contributing to their development as health professionals. Training and support for pharmacist preceptors is a key obligation for universities, to maintain the preceptor-student relationship and ensure high quality graduates.

Studies worldwide have considered the training needs and support of pharmacy preceptors and a range of preceptor training programs have been developed, mostly in the USA, particularly since the year 2000 when the minimum qualification for pharmacists changed from BPharm to PharmD.

Subsequently, there has been a surge of interest in experiential training and preceptor development. While there is consensus that training and support for preceptors is necessary, and general guidelines are available for training, the ideal structure and content for a preceptor training program has not been identified. Furthermore, it has been recognized that due to the diversity of preceptors and placement sites, some tailoring of training is required to meet the individual needs of preceptors and the institution.

Pharmacy students at James Cook University (JCU) complete 600 hours of experiential placement during their degree, under the supervision of a pharmacist preceptor. While these preceptors are provided with a manual and general precepting information, there is currently no formal training program available to them. This study aimed to design, deliver and evaluate a pharmacist preceptor training, which is tailored to meet the needs of pharmacist preceptors at JCU.

Methods

The ADDIE (Analysis, Design, Develop, Implement, Evaluate) model of instructional design was used to inform the overall design of this preceptor training program. In the analysis phase, a scoping review of the literature on preceptor training programs was conducted, followed by a comprehensive assessment of JCU preceptor needs, involving preceptors, students and academic staff, as key stakeholders in experiential placement at JCU. Mixed methods were utilized to ascertain

preceptor needs, using a preceptor survey and interviews, a student survey and focus groups and academic staff interviews. Analyses were performed using descriptive statistics, content analysis and inductive thematic analysis.

A participatory approach was taken in the design phase of the program, which was informed by the results of the needs analysis and through consultation with an expert advisory group to provide oversight and input into the program. Program materials were developed and transferred to an appropriate online learning platform in preparation for implementation. Following the delivery of the training to JCU preceptors, the program was evaluated, using Kirkpatrick's model for evaluation of training effectiveness as a guide. The mixed methods approach to evaluation included a preceptor survey immediately post-training and preceptor interviews after the first precepting experience following training. Students as key stakeholders also evaluated the preceptor using a survey to determine the outcome of the training. Analyses included descriptive statistics, content analysis, thematic analysis and Mann-Whitney U tests to compare mean student survey ratings of trained and untrained preceptors.

Results

The scoping reported a diversity of preceptor training programs, with varying modes of delivery, including face-to-face classes and online modules. A range of topics were covered, including teaching skills, being a good role model, assessment and feedback. Program evaluations were predominantly conducted using preceptor self-reported surveys or interviews. The needs analysis identified the views of all key stakeholders on important preceptor qualities such as good communication skills, interest and enthusiasm about precepting and being able to provide appropriate and timely feedback. An online flexible training program was preferred by preceptors, with content including a curriculum overview, managing students, teaching strategies, conflict management and providing feedback. In addition to online information, some form of interactive session was also considered desirable.

The training program that was designed included four flexible online learning modules, which were aligned with the four main roles of the preceptor, including being a role model, educator, mentor and assessor. These modules were embedded within an educational site within the Blackboard® learning platform. A preceptor orientation was integrated into the first module, which included an orientation to JCU Pharmacy, and an overview of the Pharmacy curriculum and the Pharmacy placements program. In addition to the online modules, the program included a small-group online interactive networking session, which promoted discussion on a series of case studies, which were

developed to reflect the module materials. An online discussion forum was also established within the learning platform.

Twenty-eight JCU preceptors from a diversity of practice settings across Queensland completed the training program and received a certificate of completion. All 28 preceptors completed the post-training evaluation survey to determine the impact of the training with a further 10 preceptors interviewed post-training to ascertain the outcome of the training program on their learning as well as to identify changes to precepting behaviour. Survey results indicated a strongly positive response to training in terms of depth of information provided, relevance and convenience. All areas of training were well received, particularly the interactive networking session. The preceptor interviews revealed that preceptors were now more confident in many areas of precepting, including setting expectations, managing students, and student assessment and feedback. The student survey involved 35 student evaluations of their preceptors and determined that students rated trained preceptors significantly higher in their skills as an effective communicator.

Conclusion

This study highlighted that preceptor training is an important responsibility of the university and is key to the success of experiential placement programs. This preceptor training program was successfully designed, developed and implemented for JCU pharmacist preceptors, with results indicating positive outcomes for both preceptors and students. Appropriate and tailored training of JCU Pharmacy preceptors will continue to assist in providing quality and consistency in student experiential placements, promoting the achievement of optimal graduate outcomes.

Abbreviations

ADDIE	Analysis, Design, Development, Implementation, Evaluation
ACPE	Accreditation Council for Pharmacy Education
AHPRA	Australian Health Practitioner Regulation Agency
APC	Australian Pharmacy Council
APPE	Advanced Pharmacy Practice Experience
ASHP	American Society of Health-System Pharmacists
CanExEd	Canadian Experiential Education Project for Pharmacy
CCAPP	Canadian Council for Accreditation of Pharmacy Programs
CPAPE	Community Pharmacy Advanced Practice Experience
CPD	Continuing Professional Development
EPA	Entrustable Professional Activity
GPhC	General Pharmacy Council (Great Britain)
IPPE	Introductory Pharmacy Practice Experience
JCU	James Cook University
OSTE	Objective Structure Teaching Exercise
PGA	Pharmacy Guild of Australia
PharmBA	Pharmacy Board of Australia
PRISMA	Preferred Reporting Item for Systematic Reviews and Meta-Analyses
PSA	Pharmaceutical Society of Australia
PSAE Tool	Preceptor Self-Assessment Tool for Entrustable Professional Activities for New Pharmacy Graduates
RPD	Residency Program Director
SDT	Self Determination Theory
UK	United Kingdom
USA/US	United States of America/United States
VARK	Visual, Aural, Read/Write, Kinesthetic

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Chapter 1 Introduction

1.1 Background

Expansion of the scope of practice of the pharmacist to encompass a more comprehensive pharmaceutical care role has led to an increasing focus on experiential placements and work-integrated learning within the undergraduate pharmacy degree and the intern and pre-registration years. Work-integrated learning is thought to be beneficial in developing pharmacists with a greater readiness to practice.¹ This change of focus has resulted in an increase in number and variety of placement experiences being provided for pharmacy students and pre-registration pharmacists worldwide.¹ Experiential training is now regarded as a critical component of pharmacy education, comprising one third of the undergraduate curriculum in the United States (US) and Canada.^{2,3} This has highlighted the important role of the pharmacist preceptor, who guides and supervises students, interns and residents during their experiential placements in the practice environment.^{3,4}

Preceptor roles and responsibilities

Preceptors fulfil many roles, but their overarching mandate is to link theory to practice for pharmacy learners during their time spent in the practice.^{5,6} As a practising pharmacist, they act as a professional role model for the learner, as well as being a guide or mentor for support and motivation.⁷ As a clinical teacher, they share their practice-based knowledge and assist in developing the professional skills of the learner. They also assess learners and provide feedback on their performance in the practice.⁸ Through these roles, preceptors are responsible for refining the knowledge, attitudes and practice of pharmacy students, interns and residents as they progress towards their goal of becoming independent fully qualified health professionals.³

Need for preceptor training

It is often assumed that all health professionals have the appropriate foundational pedagogical knowledge and skills to precept.⁶ However, while they may be competent in their field, they do not necessarily have an innate understanding of current educational practices, including the principles of student centred learning, to effectively teach, assess and provide feedback.^{6,9} The requirement for introductory pharmacy practice experiences (IPPEs) and advanced pharmacy practice experiences (APPEs) to be integrated into the pharmacy curriculum in the US has resulted in a greater reliance on

preceptors.² The introduction of entrustable professional activities (EPAs) as a means of assessing student practice-based activities has further added to the responsibilities of preceptors in the practice.¹⁰ In Australia, EPAs are in the early phases of adoption and are currently recommended for intern pharmacists only. However, there is potential for EPAs to be developed for pharmacy students in the future.¹¹ Considering the significant input of preceptors into the pharmacy curriculum through experiential placement programs, it is evident that the quality of the student placement experience is largely dependent on the skills of the preceptor.¹² With universities being predominantly responsible for student education, there is a clear obligation for them to provide appropriate training and development opportunities for their preceptors, to maintain the overall quality of the educational experience.^{4,13}

Preceptor training programs

Much of the literature pertaining to preceptor training has emanated from the US, particularly since the year 2000, when the minimum qualification requirement for pharmacists moved from BPharm to PharmD, accompanied by a substantial increase in the requirements for experiential training within the curriculum.^{14,15} This major change to pharmacy educational training led to a worldwide surge of interest in preceptor training and development, with a number of studies investigating the training needs and support requirements of pharmacy preceptors^{3,5,9,16,17,18} and a diverse range of preceptor training programs being developed and documented in the literature.^{14,19,20,21} To date, research has indicated that globally, while accrediting bodies may have standard requirements for preceptors in terms of their qualifications and professional responsibilities, there is a lack of detail provided on the specific requirements for the training and support of pharmacist preceptors.^{4,17,22,23} This has contributed to the variation in training program design and delivery methods, with currently no consensus on the ideal structure and content of a preceptor training program.⁵ It is, however, recommended that programs should be tailored to the individual school or institution, with some standardization of key program elements.^{14,16}

While a range of training programs now exist^{14,21,24-28}, there are limited examples of post-training program evaluations, which are essential to confirm the achievement of program objectives and ensure program quality. This lack of consistency in training program design and the lack of quality assurance measures for preceptor training programs has the potential to impact the overall quality of pharmacist preceptors, which may subsequently affect the quality of the student placement experience. A study of preceptor development programs in the US found that programs varied significantly across schools of pharmacy in terms of structure, content and resource allocation, and

that not all programs met the minimum expected standards for preceptor orientation.¹⁷ Additionally, several challenges and barriers to preceptor training have been identified, including the voluntary nature of precepting, time and workload pressures and a lack of available resources.^{13,17} These issues need to be considered and addressed when designing and developing training programs for preceptors.

Preceptor training in Australia

In the context of Australian pharmacy education, only one preceptor training program has been documented^{29,30}, which was a collaboration between four Australian universities to develop a national strategy for pharmacy preceptor education and support, with a particular focus on rural and remote preceptors. This program was developed in 2005 as an online flexible program for preceptors of undergraduate pharmacy students, with potential for expansion to include preceptors of intern pharmacists and preceptors from other disciplines. The program was expanded in 2007 to include other health professional preceptors, with The Australian Clinical Educator Program being developed, focusing on the education of preceptors in rural and remote locations.³¹ To date, no further expansion of this program for pharmacist preceptors has been reported.

Regarding preceptor requirements in Australia, the Australian Pharmacy Council (APC), who are responsible for the accreditation of Australian pharmacy schools, require that all universities provide opportunities for work-integrated learning for their students. They also state that professionals, including preceptors, who assess pharmacy students or interns, should be suitably qualified, experienced and prepared for their role, and that they should be provided with appropriate guidance and support.²³ While it is presumed that all universities provide some form of training for their preceptors, evidence has not been reported in the literature, although several universities provide general preceptor information or preceptor guides through their websites. These guides contain mainly procedural information, with no indication that any formal training for preceptors is available.³²⁻³⁴ Regarding information for preceptors of intern pharmacists, the Pharmacy Board of Australia (PharmBA) provide general guidelines, with both the Pharmaceutical Society of Australia (PSA) and the Pharmacy Guild of Australia (PGA) offering an online training program for intern preceptors, as part of their Intern Training Program.³⁵⁻³⁷ The National Alliance for Pharmacy Education, which was an alliance formed in 2010 between four Australian Universities, also offers an intern training, which includes localized training and support for preceptor and clinical educator development.³⁸ While the PharmBA recommends training for all preceptors of intern pharmacists,

this is not a mandatory requirement, and it must be noted that there are currently no specific Australian guidelines or requirements for training preceptors of undergraduate pharmacy students.

Preceptor training at JCU

At a local university level, the pharmacy program at James Cook University (JCU) require students to complete 600 hours of experiential placement during their undergraduate years, which must include a placement experience in community pharmacy and hospital pharmacy and include rural and remote practice. JCU have a cohort of approximately 300 pharmacist preceptors who are available to host their students in a diverse range of placement sites across Queensland, with 250 of these preceptors being based in a community pharmacy. Currently the role of the preceptor at JCU is to be a role model, to provide guidance and practice-based education and to evaluate student performance during placement. Preceptors evaluate the student at the end of their placement using a standard competency-based assessment form. JCU preceptors are provided with an online guide with procedural instructions on what is required of them as a student preceptor. Administrative and academic placement officers are available for support when required. However, currently there is no formal training and support program provided for JCU pharmacist preceptors.

1.2 Study aims and objectives

The overall aim of this study is to design, deliver and evaluate a training and support program, which is tailored to meet the needs of JCU community pharmacy preceptors.

Research Question

How can pharmacist preceptors be most appropriately trained and supported to meet their needs and promote a better student experience?

To achieve this aim and answer the research question, four objectives were identified:

1. To review the global literature on pharmacist preceptor training programs.
2. To evaluate the attitudes and practices of JCU community pharmacist preceptors and to investigate their training needs through consultation with preceptors, students and academic staff.

3. To design, develop and implement a preceptor training program for Pharmacy at JCU.
4. To evaluate the developed training program from the perspective of both preceptors and students.

1.3 Thesis Structure

This thesis will consist of ten chapters, with a summary of each chapter provided below:

Chapter 1 introduces the study and includes background information on preceptors and preceptor training, which explains the motivation for this study. This is followed by the overall aim, research question, objectives, thesis structure and significance for the study.

The general methodology for the study is explained in **Chapter 2**, which outlines how the researcher planned to address the study aim and objectives when designing, delivering, and evaluating a pharmacist preceptor training program for JCU.

Chapter 3 describes a scoping review of the global literature on preceptor training and support programs, which provided a background to inform the design, delivery and evaluation of the JCU preceptor training program.

Following the scoping review, to further inform the proposed preceptor training program, a comprehensive needs analysis was conducted, involving preceptors, students, and academic staff. The details of this analysis are included in **Chapters 4** (preceptors), **5** (students) and **6** (academic staff).

Using the integrated results of the preceptor training needs analysis, (Chapters 4, 5 and 6), **Chapter 7** provides a commentary which outlines some of the challenges for preceptors as clinical educators, as identified by this integration, and how these challenges may be addressed through training.

Based on the scoping review of the literature and the preceptor training needs analysis, **Chapter 8** describes the process by which the JCU preceptor training program was designed, developed, and implemented.

Following the implementation of the preceptor training program, it was formally evaluated, with **Chapter 9** describing the program evaluation procedures and providing a discussion of the results of the evaluation.

Chapter 10 concludes the thesis by explaining how the research question has been addressed and providing recommendations for the training of preceptors moving forward, with identification of potential areas for future research.

Table 1 below provides an outline of the chapters of the thesis and their associated publications:

Table 1.1: Thesis Outline

Chapter	Title
Chapter 1	Introduction
Chapter 2	Methodology
Chapter 3	Scoping Review of training and support programs for pharmacist preceptors Publication: Knott G, Mylrea M, Glass B. A Scoping Review of Pharmacy Preceptor Training Programs in <i>American Journal of Pharmaceutical Education</i> 2020; 84 (10) Article 8039 doi:10.5688/ajpe8039
Chapter 4	Preceptor training needs analysis – Preceptor perceptions Publication: Knott G, Mylrea M, Glass B. What do preceptors want? A mixed methods study exploring pharmacist preceptor perceptions of their training and support needs at a regional Australian university in <i>Pharmacy Education</i> 2022;22 (4) 7-18 doi:10.46542/pe.2022.224.718
Chapter 5	Preceptor training needs analysis – Student perceptions Publication: Knott G, Mylrea M, Glass B. Pharmacy student perceptions of the roles and attributes of pharmacist preceptor in Australia in <i>Pharmacy</i> 2022; 10 doi:10.3390/pharmacy10060169
Chapter 6	Preceptor training needs analysis – Academic staff perceptions Publication: Knott G, Mylrea M, Glass B. Perceptions of academic staff of pharmacist preceptor roles, skills, attributes, and training requirements: a qualitative report in <i>Pharmacy Education</i> 2023; 23 (1), 554-559. doi: 10.46542/pe.2023.231.554559
Chapter 7	Preceptor training needs – addressing challenging areas Publication: Knott G, Mylrea M, Glass B. Pharmacy preceptor training: addressing the challenges of clinical supervision in community practice in <i>International Journal of Pharmacy Practice</i> 2023: riad050 doi.org/10.1093/ijpp/riad050
Chapter 8	Preceptor training program design, development, and implementation Publication: Knott G, Mylrea M, Glass B. How should we prepare our pharmacist preceptors? Design, development, and implementation of a training program in a regional Australian university in <i>Pharmacy</i> 2023; 11(5): 148. doi: 10.3390/pharmacy11050148
Chapter 9	Preceptor training program evaluation Publication: Knott G, Mylrea M, Glass B. Pharmacist and student evaluation of a preceptor training program in a regional Australian university: a multi-method study. Submitted to <i>BMC Medical Education</i> , Sept 2023.
Chapter 10	Conclusions, Recommendations, and Future Directions for Research

1.4 Significance

Pharmacist preceptors are fundamental to the success of experiential placements. Investment in the training of preceptors is essential to ensure that they are confident and competent in role modelling, educating, mentoring, and assessing pharmacy students, thus enabling the development of competent and work-ready pharmacy graduates. This is the first pharmacist preceptor training program conducted at JCU and to our knowledge, this JCU program is the first in Australia that has been specifically designed for community pharmacy preceptors who supervise students during their experimental placements. Community pharmacist preceptors were chosen as the focus of this training, due to the increased difficulties involved in precepting in the community pharmacy environment, with considerable demands on their time and a highly variable workload. By using a participatory approach, involving the input of all key stakeholders as well as advice from the pharmacy profession and the accreditation body, this program has been tailored to meet the specific needs of JCU community pharmacist preceptors, with quality assurance being provided through a post-training program evaluation which gained the perspective of both preceptors and pharmacy students.

1.5 Chapter 1 – References

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Chapter 2 – Methodology

This study focused on preceptor training and support and as such, involved a participatory research approach, with methods and tools chosen that include the interests of the people who are the focus of the research when designing, delivering and evaluating this preceptor training program for JCU. The research was conducted in a manner that values meaningful participation in the research process, and utilised surveys, focus groups and interviews. This research to action approach emphasized direct engagement and valued local priorities and perspectives when designing the program¹, and collaboration with the pharmacy profession was also achieved through the establishment of a preceptor training expert advisory group. Program evaluation used post-training surveys and interviews to consider feedback from the preceptors as well as the students that they supervise.

This participatory approach therefore was instrumental in achieving a program that was tailored to meet the needs of not only the university, but also the preceptors and students.

2.1 Instructional design model

This study aimed to design, deliver and evaluate a training program for JCU community pharmacy preceptors. The well-known ADDIE model of instructional design was considered an ideal framework to follow to achieve this aim, given that it is known to be particularly relevant for programs using a blended online approach, which was intended for this program.²

The ADDIE model consists of 5 phases: Analysis, Design, Development, Implementation and Evaluation. (Figure 2.1) In the first phase, the instructional needs and goals of the learner need to be determined, which would include an examination of their baseline knowledge and skills and identification of their training requirements. In the design phase, the most appropriate structure and content for the program should be determined and learning outcomes developed. During the program design stage, an appropriate method of program evaluation should also be considered. The development phase would involve the preparation of the learning materials, which in the case of online learning should include the selection and development of a suitable learning platform. The development phase would be followed by the implementation phase, where the program is delivered to participants, ensuring that during the process, modifications are made where needed. Finally, the program should be evaluated to confirm that it has addressed and met the learning outcomes and as a means of identifying any issues or gaps to be considered in future programs. The ADDIE model represents a continuous process, with potential for ongoing modification and further

development of the program to adapt to changing teaching and learning requirements. This methodology chapter will use the ADDIE model of instructional design to describe the process undertaken in achieving the aim and objectives of this study.

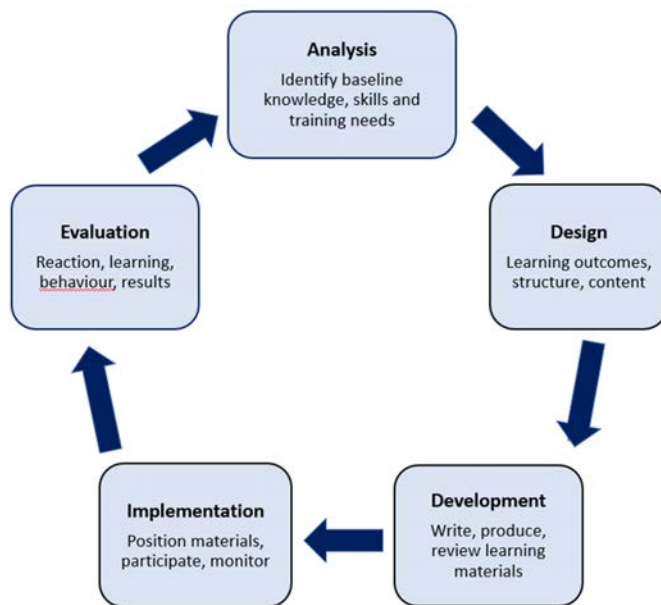


Figure 2.1: ADDIE Model of Instruction Design

2.2 ADDIE - Analysis

The first step in the ADDIE model of instructional design is Analysis, which firstly involved the identification of the background knowledge and skills and the practice setting of the pharmacist preceptor (who is the learner in this training program), followed by the determination of the additional knowledge and skills required to optimally train and support pharmacist preceptors. To determine the training and support requirements of pharmacist preceptors, a scoping review of the literature³ followed by a preceptor training needs analysis were conducted.^{4,5}

2.2.1 Scoping Review of preceptor training programs

The scoping review examined the current literature on preceptor training, both in Australia and globally. The focus of this review was on the design and delivery of preceptor training programs, which included both structure and content, and the methods utilized to evaluate these programs. The scoping review was conducted using the six stage methodology of the Preferred Reporting Items

for Systematic Reviews and Meta-analyses (PRISMA) process.^{6,7} A scoping review is appropriate when the topic of interest is broad and diverse and enables the researcher to map the evidence available in a particular area of research and allow for easier identification of gaps in the literature.^{6,7} Relevant literature from the previous 20 years was examined, with this time frame chosen due to significant changes to the nature and extent of experiential placement in the year 2000. Twenty-one articles were included in the review, which were evaluated for quality according to the Newcastle-Ottawa quality assessment scale.⁸

The scoping review found that preceptor training programs varied widely and ranged from small school-specific programs to large multi-university programs. The majority of programs were being conducted either online or face-to-face, or used a combination of the two, with flexibility of training being a key requirement. A range of areas for training were identified, including teaching and assessment skills and the provision of feedback. Most training program evaluations were positive where programs were mainly evaluated from the perspective of the preceptor. Data from the scoping review are reported in detail in Chapter 3.

2.2.2 Preceptor needs analysis

This needs analysis followed an explanatory sequential mixed-methods design, using quantitative surveys and qualitative interviews with key stakeholders in pharmacy experiential education. The main advantage of a mixed methods approach is the achievement of both breadth and depth of data, which, for this study will enable a rich understanding of preceptor educational needs, to inform the design of the training program.⁹ The sequential nature of the data collection process allowed for the quantitative surveys to inform the interview and focus group questions. The inclusion of preceptors, students and academic staff in this needs analysis confirmed the participatory approach using a systematic inquiry in direct collaboration with those affected by the issue being studied. Figure 2.2 shows the needs analysis design process for this study.

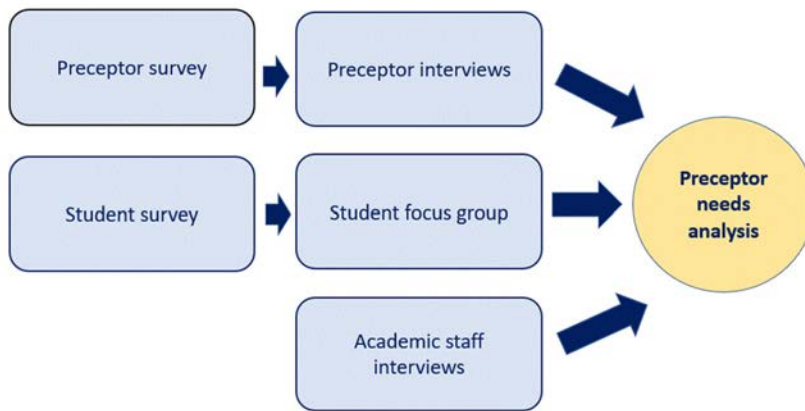


Figure 2.2: Design for preceptor needs analysis

Preceptor surveys and interviews (Chapter 4)

An online preceptor survey (Appendix A) was developed and delivered to all 250 current JCU community pharmacy preceptors using the Qualtrics® online survey platform. Information collected included preceptor demographics, preceptor attitudes and practices regarding precepting and their training preferences and support requirements.

The results of the preceptor survey were used to inform questions for a series of semi-structured interviews (Interview Guide – Appendix B) with consenting survey participants. All 62 survey respondents were invited to participate in an interview to further explore preceptor training needs. Ten of the 19 preceptor respondents who agreed to be interviewed were purposively selected, ensuring that a representative sample was chosen, based on gender, years of practice and practice location. The interviews further explored preceptor responses from the survey to obtain a more in-depth understanding of their attitudes and perceptions about their training needs and support requirements.

Student survey and focus groups (Chapter 5)

An online survey (Appendix C) was developed and delivered to all JCU pharmacy students from levels 2 to 4 of the BPharm (Hons) degree, which totaled 68 students. Year 1 students were not included as they had not yet undertaken any experiential placement and were therefore not expected to have any significant knowledge of preceptors. Students were asked about their experiences with preceptors as well as their opinions on the preceptor role and ideal skills and attributes of the preceptor.

The student survey results informed the focus group questions, with students being questioned further on their experiences with preceptors and what they perceive to be preceptor roles and ideal

skills and attributes. The 42 students that responded to the survey were invited to participate in a student focus group interview. Focus groups were considered more appropriate for students rather than individual interviews as they may be less confronting and would enable students to feel more comfortable to contribute to the conversation.⁹ The additional advantage of the focus group was the interactive nature of the interview, with the ability to assess responses across a group. Groups involving students from the same year level rather than mixed levels were also thought to ensure that students had similar past experiences with preceptors and were more likely to be comfortable in speaking within the group during the interview.⁹ Student questions for each group were modified to accommodate the expected level of experience with preceptors. (See Interview Guides – Appendices D and E) Three focus group interviews were conducted, representing students from levels 2, 3, and 4 respectively. Nine students in total participated in the focus groups, and this included three students from each year level.

Academic staff interviews (Chapter 6)

Nine academic staff members were selected from a list of 34 potential staff to be interviewed. (Interview Guide – Appendix F) As staff numbers at JCU are relatively small, all staff teach in the area of practice, therefore all JCU staff were considered for interview. The main advantage of an interview for academic staff was the flexibility and convenience of the process for both interviewer and interviewee. Interviews allowed the researcher not only to obtain information from staff that was communicated in their own words, but also to capture their thoughts, feelings and attitudes towards preceptor training.⁹ The semi-structured design of the interviews also enabled academic staff to have some control over the direction of the conversation.⁹ Staff were selected using purposive sampling to ensure a representative group of staff, including tenured and adjunct academic staff and pharmacist tutors. Staff opinions were sought on roles, skills and attributes of preceptors, training and support requirements, and enablers and barriers to preceptor training.

Survey and interview analysis (Chapters 4, 5 and 6)

Data from both the preceptor and student survey were analysed using SPSS® (SPSS 27 Statistics for Windows, Armonk, NY: IBM Corp) to summarize the data using descriptive statistics. Content analysis was used to analyse responses to open-ended questions. To identify associations between demographic data and responses, Chi-square tests were conducted, with significance level set at < 0.05.

All interviews were thematically analysed using the method outlined by Braun and Clarke¹⁰ using NVivo® (details of NVivo) to assist with coding and theming of the data.

For both the preceptor and the student investigations, quantitative results from the survey were integrated with the qualitative interview data, with integration focusing on the level of concordance or dissonance between qualitative and quantitative results. Following data integration, results for preceptor roles, ideal skills and attributes, were themed according to four main roles of the preceptor as a role model, educator, mentor and assessor. This categorization was used by Condrey¹¹ in 2015 in their preceptor training program and was an appropriate way of classifying preceptor roles to facilitate an even distribution of program content. While this program was designed for nurse preceptors, it was felt that many of the principles of precepting apply across all health professionals.⁶

2.3 ADDIE – Program Design

The participatory approach used to inform the design of the preceptor training program, ensured that the design and delivery of the training considered the needs and opinions of all key stakeholders and resulted in a program that was tailored to their requirements, with a particular focus on the preceptor. In addition to the scoping review of preceptor training programs and the comprehensive needs analysis, an expert advisory group was established to provide oversight and input into the design of the program.

2.3.1 Preceptor training expert advisory group

The research team are all experienced academics, with one member of the team having significant experience in education and learning and another with a strong teaching and research background, which collectively provided a wealth of pertinent knowledge to inform the design of this program. However, it was felt that an expert advisory group representing the pharmacy profession would provide additional oversight and ensure an independent and unbiased opinion of the program design. Aside from the three members of the research team, the advisory group also included a representative from the Pharmaceutical Society of Australia (PSA) and the Australian Pharmacy Council (APC), with the PSA being the peak professional body and the APC being responsible for the accreditation of pharmacy programs in Australia. Two preceptor representatives were also included in the expert advisory group, one each from a rural and an urban placement site. A draft design for the training program was presented to the advisory group for discussion and comment prior to development and implementation of the program. Following feedback from the group, the proposed program was modified and progressed to produce the final version. The expert advisory group met

again following implementation of the program to discuss the outcomes and consider future improvements to the program.

2.3.2 Program content

The design of this content considered preceptor requirements for flexibility as well as the desire for interaction with other preceptors. The proposed content for the program was based on programs in the literature and the specific needs of JCU preceptors as determined by the needs analysis, with input from the expert advisory group. The final design included four online modules and a small group online networking session. The topics to be covered in the four modules were aligned with each of the four main preceptor roles outlined by Condrey¹¹ i.e., role model, educator, mentor, assessor. The interactive networking session included practical case-based scenarios for discussion, with small groups being more conducive to optimal participation from each of the group members. An online discussion forum was also planned to be established within the online platform, allowing for preceptors to partake in asynchronous discussion for added flexibility and convenience.

2.4 ADDIE – Program Development and Implementation

Program materials for the four modules were uploaded onto an organizational site within the JCU Blackboard Learn® educational platform. In addition to the educational content for the four modules, learning objectives were provided, as well as orientation materials such as a welcome message and an overview of the JCU pharmacy curriculum. The inclusion of a curriculum overview as part of the orientation materials was a key component for the success of a preceptor development program, allowing preceptors to know what to expect from their student at the time of their placement, in terms of knowledge and skills.¹² Modules incorporated the developed content materials as well as a range of supplementary mini videos, supporting activities, background references and a ten-item multiple choice feedback quiz at the end of each module. The timeline for completion of all four modules was 5 weeks, with this timeline considering the overall high workloads of community pharmacy preceptors. Careful consideration was given to the length of the modules, also considering preceptor workload, aiming for an estimated module completion time of 1.5 hours per module. Following completion of all four modules, preceptors then registered to attend a small group interactive networking session at the time of their choice. Following attendance at a networking session, preceptors were provided with a certificate of completion and invited to

complete an online program evaluation survey. An in-depth discussion of the preceptor training program design, development and implementation can be found in Chapter 8.

2.5 ADDIE – Program Evaluation

In considering the evaluation of this program, Kirkpatrick's model of training evaluation criteria for evaluating educational effectiveness was used. Kirkpatrick's model outlines four levels of evaluation: reaction, learning, behaviour and results.¹³ The reaction and learning levels will measure the degree of satisfaction with training and the degree of learning achieved with the training, ascertained from the preceptor through a post-training survey or interview. The behaviour level requires identification of any changes to learner (in this case, the preceptor) behaviour that occur because of training and the results level requires the evaluator (the researcher) to measure changes to learning outcomes, for example, an improvement in preceptor performance and student learning. To ensure a balanced evaluation of educational effectiveness, this training program was evaluated from the perspective of both the preceptors and the students.

2.5.1 Preceptor post-training evaluation

This training program evaluation from the perspective of the preceptor was conducted in two stages. Stage one was a post-training survey (Appendix G) conducted immediately following the training to determine the impact of the training on preceptor learning. Stage two of the preceptor evaluation was a post-training interview conducted immediately following the next student placement hosted by the preceptor to determine the outcome of the program on precepting attitudes and behaviour.

The post training survey was completed by preceptors online through the preceptor training organizational site. Immediately following completion of all components of the training program, a link was made available to preceptors for participation in the survey. Preceptor opinions were sought on the depth of information provided by the training program and relevance of the program to their current needs, as well as the appropriateness of the training format. They were asked about the usefulness of each individual area of training, along with the best aspects of the program and suggested improvements to the program. To identify possible associations between relevant variables, preceptors were also asked for demographic information. The information gathered from

this post training survey was sufficient to evaluate levels 1 and 2 of Kirkpatrick's model, measuring preceptor satisfaction with the program and the degree of learning achieved.

Post-training interviews (Interview Guide – Appendix H) were conducted with all consenting preceptors who completed the program and had subsequently hosted a student over the following 8 months. Preceptors were asked about the outcome of the training program on their precepting behaviour and on their confidence in their precepting role. They were also asked for suggestions and additional topics for future programs. The preceptor interviews allowed an insight into any changes to behaviour or confidence levels which may have resulted from the training program, thus addressing level 3 of Kirkpatrick's evaluation model, although only from the perspective of the preceptor.

2.5.2 Student post-training evaluation of the preceptor

Participatory evaluation was undertaken where the opinion of students was also sought to measure changes to precepting habits which may be related to preceptor training. This was to share the decision making in the evaluation of the program, with this important stakeholder group being the focus of precepting, with accreditation guidelines encouraging students to provide feedback on teaching and learning effectiveness.^{14,15} This evaluation was designed to measure outcomes in terms of student measured changes to preceptor performance following training, thus addressing level 4 of Kirkpatrick's model for evaluation of educational effectiveness. The investigation utilised the routinely conducted *Student Evaluation of the Preceptor* online survey (Appendix I) which is completed by each student at the end of each experiential placement. All student evaluation surveys in the year following training were collected and analysed using SPSS®. Student evaluations of preceptors who had completed training were compared to those who had not participated in training. For this purpose, the mean student score of the 18 precepting skills evaluated in the survey were used. In addition, the 18 precepting skills were categorised into four precepting areas based on the four main roles of the preceptor, being role model, educator, mentor, and assessor.

Comparisons of trained and untrained preceptors were made for each of these categorisations using the Mann Whitney U test for non-parametric data. As the training program was offered only to community pharmacy preceptors, all other preceptor evaluations were not included in the analysis. Figure 2.3 below shows the process undertaken in the evaluation of this program.

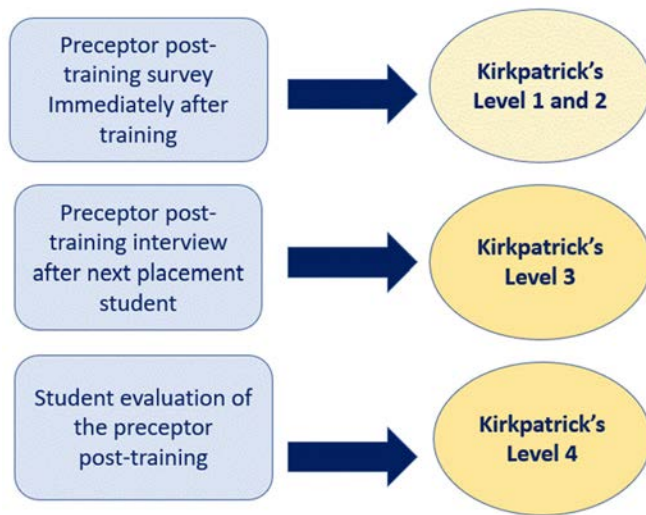


Figure 2.3: Preceptor training program evaluation process

For additional clarity, a summary of the studies included in this thesis, along with data collection methods, participant numbers and the associated study objectives and relevant chapter is contained in Table 2.1.

Ethics approval was obtained from the James Cook University Research Ethics Committee for the analysis, design, development, delivery and evaluation of this preceptor training program (H8276 – Appendix J)

Table 2.1: Summary of studies aligned with objectives and chapters

Study	Design and Data collection	Method of Analysis	Objective	Chapter
<i>Scoping review of preceptor training programs</i>	Scoping review: 21 articles	Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) Method	1	3
<i>Preceptor needs analysis</i>	Mixed Methods: 55 preceptor surveys 10 preceptor interviews	Descriptive statistics, Content analysis Chi square analysis Thematic analysis	2	4
<i>Student needs analysis</i>	Mixed Methods: 37 student surveys 3 student focus groups (9 students in total)	Descriptive statistics Content analysis Chi square analysis Thematic analysis Integration of quantitative and qualitative data.	2	5
<i>Academic staff needs analysis</i>	Qualitative Method: 9 Academic staff interviews	Thematic analysis	2	6
<i>Design and delivery of a preceptor training program</i>	Participatory approach to the design of the program	Design based on 4 preceptor roles: Role Model, Educator, Mentor, Assessor (11)	3	8
<i>Training program evaluation – Preceptor</i>	Mixed Methods: 28 preceptor post-training surveys 10 preceptor post-training interviews	Descriptive statistics Chi square analysis Integration of quantitative and qualitative results	4	9
<i>Training program evaluation – Student</i>	Quantitative Methods: 35 post-training student evaluations of the preceptor	Comparison of trained and untrained student evaluations Mann Whitney U test for non-parametric data Content analysis	4	9

2.6 Chapter 2 - References

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CHAPTER 3 Scoping review of the literature

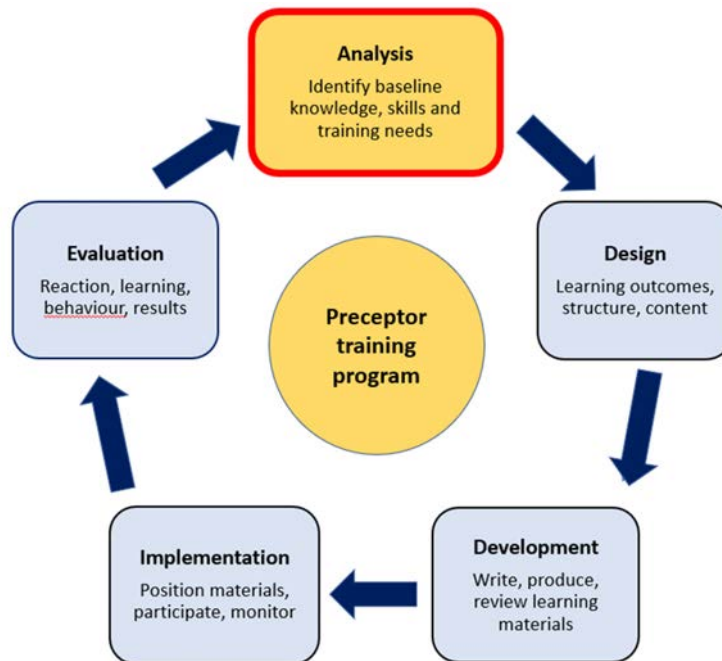
This chapter is a scoping review of the literature on preceptor training programs and represents the beginning of the **Analysis** phase of the ADDIE instructional design model process, providing a background from which to consider preceptor training in general and to inform the JCU preceptor training needs investigation. This is the first publication for this study, and it has been published in the *American Journal of Pharmaceutical Education*.

Knott G, Mylrea M, Glass B. A scoping review of pharmacy preceptor training programs. *Am J Pharm Educ.* 2020; doi:10.5688/ajpe8039

Authors' contributions

Gillian Knott conducted the research and prepared the manuscript. Beverley Glass and Martina Mylrea supervised the research and reviewed the manuscript prior to submission.

Permission obtained from American Journal of Pharmaceutical Education for the inclusion of this published journal article.



ADDIE Model of Instructional Design

3.1 ABSTRACT

Objective: To examine the literature pertaining to pharmacy preceptor training programs.

Findings: Preceptor training is becoming increasingly important to maintain the quality of experiential training and professional development for pharmacy students, pre-registration trainees and residents. This review found limited documented examples of preceptor training programs with a wide variation in both their design and delivery, attributed to the diversity of pharmacy practice workplaces and the different types of trainees. Most programs included a significant online component, often supported by a face-to-face orientation, with a focus on developing core competencies and with some tailoring of content to suit the specific workplace environment. Evaluations of these training programs showed high preceptor satisfaction rates, with preceptors appreciating the ease of access of online training and the benefits of interaction with other preceptors in face-to-face training. Preceptors also reported positive changes to behaviour and attitudes to precepting and an increased understanding of student learning.

Summary: This review has highlighted that a structured and evidence-based approach to preceptor training is required. Programs should be educationally sound, practically focused, and flexible to meet the needs of a diverse range of preceptors and practice environments. Going forward, it is important that programs be evaluated not only in terms of outcomes for preceptors, but also should measure student, pre-registration trainee and resident engagement and educational outcomes.

Keywords: feedback and assessment, preceptor development, training, tutor.

3.2 Introduction

Over the past 30 years, the role of the pharmacist has evolved and expanded, with the emphasis moving from predominantly a supply function towards the provision of comprehensive pharmaceutical care.^{1,2} As a result of the changing pharmacy landscape and an increased requirement for high quality practice-ready pharmacy graduates, experiential training within the academic curriculum and prior to licensure has become increasingly important. The movement to the PharmD as the sole entry level degree in the United States (US) after July 2000 renewed the focus on experiential education, with updated guidelines for advanced pharmacy practice experiences (APPEs) requiring preceptors to deliver an estimated 30% of the PharmD curriculum.^{3,4} Similarly, in Canada, pharmacy faculties are currently transitioning to a PharmD educational model, with the requirement for experiential education hours also increasing significantly.⁵ The training and development of pharmacy residents has also evolved in response to an increase in number and variety of practice settings and specialties. This increased requirement for student experiential training and resident development has highlighted a major role for pharmacy preceptors, with their training and support becoming a priority.^{1,5,6}

A preceptor may be defined as a practising pharmacist who serves as a role model to guide a pharmacy student, pre-registration trainee or resident in the development of their professional knowledge, attitudes and practice.^{7,8,9,10} The quality of student experiential training and resident development has been reported to be highly dependent on the preceptor.^{1,9,11-13} However, while these preceptors provide a vital link between theory and practice, they are largely not remunerated and universities as well as residency programs are becoming increasingly reliant on their willingness to voluntarily contribute their time and expertise to the next generation of pharmacists.^{7,14} In order to continue to provide high quality experiential training and maintain the preceptor-student relationship, universities therefore have an obligation to provide adequate and appropriate training to support their preceptors.^{12,14} It has also been recognised that ongoing preceptor development is critical to a successful residency training experience and leads to a more highly skilled and satisfied workforce.¹³

The Accreditation Council for Pharmacy Education (ACPE) Standards 2016 specify that pharmacy preceptors must be orientated to the mission of their particular program and must be provided with professional development in line with their educational responsibilities.¹⁵ Similarly in Canada, the Canadian Council for Accreditation of Pharmacy Programs (CCAPP) require pharmacy faculties to have established criteria and training for preceptors and commitment from preceptors to support

the teaching process. The American Society of Health-System Pharmacists (ASHP) outline standards for pharmacy residency programs, which include standards for preceptors in terms of qualifications, teaching roles and resident assessment. In the United Kingdom (UK), pharmacy training has become more clinically focused with all students now completing a Master of Pharmacy degree prior to entering their intern year. Despite these changes to the UK curriculum, the General Pharmaceutical Council has no specified requirements for experiential clinical training within the degree, or for the training of student or intern preceptors (termed tutors in the UK).¹⁶ In Australia, it is recommended, but not compulsory for preceptors of intern pharmacists to undertake a preceptor training program in preparation for their precepting role.¹⁷ The Australian Pharmacy Council (APC), requires that all professionals who assess students/interns are suitably qualified, experienced and prepared for their role and that they are provided with appropriate guidance and support.¹⁸

The expansion of the role of pharmacists worldwide has resulted in an increased number and diversity of student experiential and residency training programs, thus highlighting the important role of the preceptor and the need for quality preceptor training.^{1,2,19} Considering current preceptor training requirements, the aim of this scoping review was therefore to review the available literature on pharmacy preceptor training programs.

3.3 Methods

This scoping review was conducted using the six stage methodology of the Johanna Briggs Institute²⁰ which is based on the original scoping review framework of Arksey and O'Malley with subsequent enhancement by Levac and Colquin.^{21,22} A scoping review is particularly suitable for this topic which encompasses a broad and diverse range of literature, enabling a comprehensive overview to be provided, from which gaps and areas of interest can be more easily identified. The research question to be addressed by this review is: "How are pharmacy preceptor training programs currently being designed, delivered and evaluated?"

An initial database search was conducted using 5 relevant databases, which included Cinahl, Medline (Ovid), Scopus, ERIC (educational) and Informit A+ education. Keywords included 'pharmacist' or 'pharmacy', 'preceptor' 'tutor' 'trainer' or 'preceptorship' 'training' or 'development' and 'program' 'evaluation'. The inclusion criteria for the initial search included all literature, full texts and abstracts in English. A further search using keywords identified in the initial articles was carried out, with the reference lists and citations for all articles also searched for additional literature.

The article selection process was conducted in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) system and is outlined in detail in Figure 1. Following the identification of relevant articles, each article was screened by title and abstract and after the removal of duplicates, it was decided to refine the search criteria by setting a time frame of the past 20 years (i.e., literature published between 1998 and the present) and excluding all literature relating to the training of students rather than preceptors. The 20-year time frame was chosen due to the significant changes in experiential education that occurred around the year 2000.

A review team of 3 researchers were involved in independently assessing the remainder of these articles against the inclusion and exclusion criteria. Criteria for inclusion were articles from any country relating to the training of all preceptors of pharmacy students, interns, and residents. Articles that were excluded were those that focused on: interprofessional education; training of students, interns, or residents; preceptor roles (including mentoring), careers or needs analyses; specific content of preceptor training programs and standards, guidelines or frameworks. Following collaborative discussion among the research team, consensus was achieved to select the final articles for the review. A summary of the selected articles is presented in Tables 1 and 2. This summary includes for each article the author/year/country of origin, the study design, participants and setting and an outcome for each study. The study outcomes were mapped to 3 main domains, with Domain 1 being program design, Domain 2 being program delivery and Domain 3 being program evaluation.

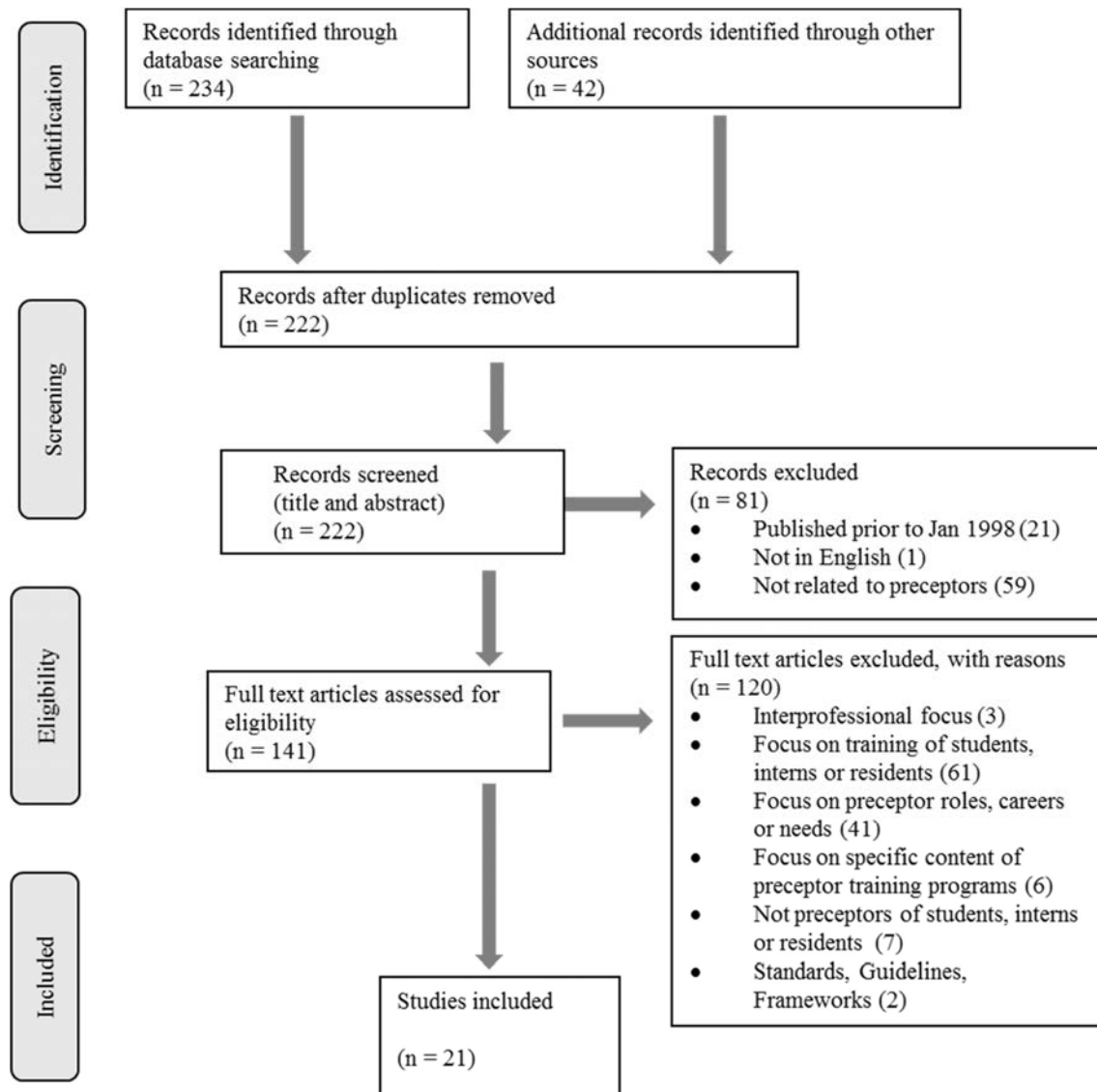


Figure 3.1: PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) flow diagram of scoping review search strategy

With most articles included in this review being cohort studies, it was decided that the Newcastle-Ottawa Scale was an appropriate tool to evaluate study quality, as this scale has been designed to assess the quality of non-randomised case-control or cohort studies in meta-analyses. Using this scale, quality assessment was scored using a star system with a maximum of four stars to be awarded for each article. The three criteria considered in this assessment are the study group selection, comparability of study groups and the assessment of the outcome of interest.²³

3.4 Results

The search strategy identified a total of 276 articles, and following the removal of duplicates, 222 articles remained. Following the refinement of the search and the application of inclusion and exclusion criteria, 21 articles were considered appropriate for inclusion in the review (Appendix 1 and 2). The 21 articles included were from four different countries, with the majority (14 articles) being from the US, followed by Canada (3), Australia (3) and one article from the UK. Years of publication ranged from 2004 to 2018, with over 75% of the articles being published in the latter half of this period. Eight of the 21 articles described studies relating to pharmacy preceptor training programs in general,^{1,3,8,24-28} while 10 focused specifically on hospital pharmacy^{10,13, 29-36} and two on community pharmacy.^{37,38} Of the 10 hospital-focused articles, eight of these discussed residency preceptors, with one article covering both student and residency preceptors³⁵ and one looking at student preceptors only.³² Three of the hospital based articles (two from the USA and one from Canada) were surveys of hospital residency co-ordinators to investigate current preceptor training and development practices in hospital residency programs.²⁹⁻³¹ A thesis investigating preceptor recruitment, training and retention strategies across the US was also included.³⁹ The majority (62%) of studies described involved less than 60 participants, however, the number of participants ranged from 14 hospital-based residency co-ordinators in Canada²⁹ to 382 pharmacy preceptors across five universities in the US.²⁶ All three of the articles from Australia outlined various aspects of the same preceptor training program, including the design,⁸ delivery²⁴ and evaluation of this program.^{24,27}

Across the 21 articles in this review, 15 different preceptor training programs are described.^{3,4,10,13, 24, 25,26, 28,32-38} with eight of these also including a formal evaluation of the program.^{3,10,25,26,28,32,37,38} The majority of evaluations were undertaken through the use of preceptor or student surveys but also via post-training preceptor focus groups or interviews. Of the eight program evaluations, only three described both a preceptor and a student evaluation,^{3,37,38} with the remaining articles conducting a preceptor evaluation only. Additionally, three articles conducted both pre and post training evaluations.^{3,25,38} Only two of the eight program evaluations were from hospital preceptor training programs, with both of these relating to undergraduate preceptor training programs^{10,32} A brief description of the outcomes of each study is outlined in Appendix 1 and 2, with Appendix 1 including articles relating to preceptors of undergraduate students and Appendix 2 on preceptors of postgraduate students (pre-registration trainees and residents). Preceptor training methods included both face-to-face sessions and web-based modules, often in conjunction with written materials such as a preceptor manual, pre-session assignments and self-study readings. Support

measures included on-line preceptor networks, preceptor meetings, preceptor ‘pearls’ and regular newsletters (Appendix 1 and 2). Preceptor training program evaluations were predominantly very positive, with high preceptor satisfaction rates. Preceptor comments from the surveys and interviews described many program benefits, including ease of access to training, self-directed learning, interactive, good to share ideas, positive changes to behaviour and attitudes, good insight into student learning and changes to their approach to being a preceptor.^{3,10,24-28,32,37,38} The three documented student evaluations of preceptors also provided very positive results overall.^{1,37,38}

When assessing quality using the Newcastle-Ottawa scale, most articles satisfied the first criterion of selection, being a somewhat or truly representative sample of the cohort being studied. The second criterion of comparability scored poorly, with only four of the 21 studies being designed to include a control cohort; these were in the form of either a pre or post survey of pharmacy preceptors or a pre and post student evaluation of preceptors. Approximately half of the articles met the final criterion, on the basis of providing an independent blind assessment of outcome or having an appropriate length of time to follow-up from the study or providing both of these criteria. A summary of the results of this quality assessment is provided in Table 3.1.

Table 3.1: Newcastle-Ottawa assessment scale scores for included articles²³

	Assessment Criteria		
	Selection Max 1 star	Comparability Max 2 stars	Assessment of outcome of interest Max 1 star
Number of articles	19	4 (1 star) 0 (2 stars)	10
Overall Quality Assessment Score			
Number of stars	Number of articles		
★★★★	0		
★★★	4		
★★	6		
★	9		
No stars	2		

3.5 Discussion

The move to the Pharm D curriculum model in the US in 2000 has been the stimulus for much research and development surrounding the training and support of preceptors. With Canadian faculties also in the final stages of the transition to a PharmD, it is not surprising that much of the

literature on this topic has originated from these two countries. The increasing need for preceptor training and support has been well documented,^{1,3,5,6,9,11,39,40} however, there is still much debate about the optimal approach to this training in terms of design, development, and evaluation of training programs.

The training and support needs of pharmacy preceptors have been considered and addressed by professional bodies in many countries, with a range of recommendations and guidelines being developed over recent years. The 2011-2012 AACP Professional Affairs Standing Committee recommended the development of a nationally recognised preceptor training program culminating in the award of 'Master Preceptor'.⁶ The Committee suggested that all colleges of pharmacy should institute and continuously review a development program for their preceptors, which ensures that they are competent and supported with appropriate resources and that they receive recognition for their work. These programs should be delivered using a variety of approaches (e.g., face-to-face, online, web-based, and paper-based) to accommodate preceptor needs. The 2017-2018 Report⁴¹ of the afore-mentioned Committee also recommended that to foster the ongoing professional development of preceptors, training programs should make use of continuing professional development (CPD) strategies such as the newly developed online preceptor self-reflection/self-assessment (PSAE) tool for entrustable professional activities (EPAs). This would allow preceptors to self-assess their competency to teach and assess EPAs for new pharmacy graduates. The CPD approach to ongoing training was also used by Tofade et al who trialled an online CPD training portfolio to promote reflective, self-directed learning in preceptors, to improve teaching and to set realistic learning goals for students.²⁸

The Canadian Experiential Education Project in 2018 resulted in the design and development of a prototype for a national preceptor development program in Canada, suitable for an online platform.^{5,42,43} They proposed that preceptor training programs should be based on a set of core competencies and performance indicators, include preceptor engagement and retention strategies, and provide both an initial orientation as well as ongoing development. Results from

Johansen's nation-wide survey of US experiential education academics also supported the requirement for orientation, as well as regular ongoing development programs for preceptors.³⁹

As outlined in Appendix 1 and 2, a diverse range of design and delivery approaches to pharmacist preceptor training has been described in this scoping review. This is not surprising given the variety and complexity of pharmacy practice environments both within and across countries, which will inevitably lead to different preceptor learning needs.³ Due to this diversity, Young et al have suggested that training programs will need to be tailored to suit the individual requirements of both

the preceptor and the student.⁹ However, a recent Australian study by Lucas et al which investigated the role of preceptors concluded that even in light of the diversity of experiential placement settings, some standardization of preceptor training was important, particularly in the area of assessment and feedback.¹⁹ Researchers from the US concluded that while there are core generic skills which should be covered in all preceptor training programs, a comprehensive program should also include a range of additional educational content with a high degree of flexibility to accommodate individual preceptor needs.³ The research undertaken in both the UK and Australia, although limited, has highlighted the importance of a consistent approach to preceptor training with the current lack of consistency in the training experience of UK pre-registration pharmacists posing potential risks to quality and patient safety.^{2,25} A pilot preceptor training program was developed and evaluated by Davison et al in the UK to begin to address this problem.²⁵ In Australia, the national training program that was developed jointly by four Australian Universities provided a core education and support program consisting of five online educational modules which had the potential to be customised and used by other undergraduate programs or extended for graduate programs.^{8,24,27}

Of the 15 individual preceptor programs included in this review, seven were hospital pharmacy specific, with five of these describing residency preceptor programs. While it is assumed that the principles of effective precepting would apply to both undergraduate and postgraduate preceptors, it is expected that there may be some differences in the level of preceptor training needed for these two groups of trainees. A more structured environment may exist in residency programs where a residency program director (RPD) has overall responsibility for preceptor development and evaluation. The importance of succession planning in hospital residency programs has also been recognised with some facilities providing programs for 'preceptors in training' and for residents to precept students.^{13,31,35} Resident preceptors are required to comply with the American Society of Health-System Pharmacists (ASHP) accreditation guidelines, which include the preceptor roles of instructing, modelling, coaching and facilitating.¹³ They are expected to have advanced clinical knowledge in their area of practice, excellent teaching ability, the ability to assess resident performance and provide feedback and to display ongoing professionalism. However, while the requirements and expectations of the hospital residency preceptor are clearly indicated in the guidelines, there is little detail as to exactly how these preceptors should be trained to achieve these standards.^{13,30,31} Studies indicate that most hospitals had some form of residency preceptor development program, which were diverse in structure and frequently lacking in standardization of preceptor competencies or certification.²⁹⁻³¹ Hospital residency programs described in this review ranged from fully online to fully face-to-face, with most including an orientation program along with

ongoing development in the form of foundational workshops, continuing education sessions, face-to-face educational sessions, preceptor pearls and self-study.^{13,29,34} Only two community pharmacy specific preceptor training programs were identified in the literature, with Cerulli and Briceland in 2004 describing many obstacles to the provision of pharmaceutical care in the busy community pharmacy environment, such as time and workflow issues, which created difficulties when designing and delivering appropriate preceptor training.³⁴ Macedo et al discussed a community pharmacy trial of a specific teaching exercise in providing student feedback as a method of preceptor development. While the trial was determined to be an effective training method, it was also time consuming and resource intensive.³⁸

Overall, the most common preceptor training approaches identified by this review were face-to-face sessions (12 programs) and online modules (9 programs), with six of the 15 programs outlined including a combination of these two methods. An online option for training is considered to be convenient and often a necessity due to the widespread geographical distribution of preceptors. Various online preceptor development resources such as the Therapeutic Research Centre's 'Pharmacist Letter'⁴⁴ have recently been developed in the US and have been used by some pharmacy programs for their preceptors.^{13,34,43} However, technology is not considered to be a complete substitute for face-to-face training, with Assemi et al reporting that 70% of preceptors preferred locally run face-to-face development courses.⁴⁵ Face-to-face interactions were thought to be important in the creation of deep meaningful relationships between preceptors and consequently to promote preceptor networking.⁴⁰ The importance of flexibility in a training program was also emphasized, with several studies identifying time constraints and problems with preceptor availability to be significant barriers to training.^{30,32,36}

In addition to training, various strategies for support, recognition and integration of preceptors have been utilised. Preceptor support is commonly provided in the form of online support networks, preceptor newsletters, preceptor training manuals and mentoring of inexperienced preceptors. Given the key role that preceptors play in the linking of theory to practice, the importance of ongoing communication has been highlighted, with a focus on preceptor recognition and integration into the academic team. Strategies to maintain or improve communication have included regular placement site visits, networking with professional organizations, preceptor advisory and discussion boards and preceptor excellence awards.^{3,4,8,13,32,36,43} In consideration of the significant teaching contribution of preceptors into the undergraduate curriculum, many colleges are formalising the link with preceptors by offering adjunct teaching appointments or developing academies of preceptors.^{4,39} This practice reinforces the responsibilities of colleges and schools of pharmacy in the

provision of preceptor development. Many pharmacy programs have also recognised that due to the time spent with students/interns and the predominantly voluntary nature of precepting, some form of incentive might be needed to attract preceptors to undertake training and development programs. The provision of CPD credits for precepting and preceptor development activities, which count towards licensure renewal, has been recommended^{37,39,46} and this practice has been incorporated into a number of training programs.^{3,4,10,26,28,37}

A range of issues and concerns have been raised by preceptors from all of the various settings, including the problems of lack of time and remuneration, appropriate preceptor acknowledgment and ways of dealing with unmotivated or problem students.^{12,45} Particular areas for training identified by the literature include teaching skills, how to serve as a role model, making time for students, effective communication with students, and student assessment and feedback.^{9,12,45} With regard to assessment and feedback, many preceptors felt that they either did not have adequate time or were not appropriately qualified to evaluate students or residents.^{1,12,14,19,30,47} Feedback is a crucial element of the preceptor role and it has been reported that providing effective written and verbal feedback is one of the greatest challenges for preceptors.^{30,38,48} On a positive note, many benefits of training for preceptors have been documented, including an increase in preceptor confidence and career satisfaction, a better ability to maintain clinical skills and increased job opportunities.^{45,49}

It was notable that a formal program evaluation was performed for only eight of the 14 programs listed in the review, with most evaluations being qualitative in nature and based on feedback from the preceptor. All three program evaluations which obtained student feedback involved undergraduate preceptors.^{3,37,38} Vos and Trewet, in their pre and post preceptor program evaluation, found that while students rated preceptors overall higher post program, there was no difference in the number of preceptors rated as excellent, with movement being mainly in the lower rated preceptors.³ The remaining two program evaluations involving students were conducted post-training only, with predominantly positive student feedback.^{37,38}

In evaluating a training program, it is useful to consider Kirkpatrick's well-known model of educational effectiveness, which looks at the four criteria of *reaction, learning, behaviour and results*, with *reaction and learning* focusing on the impact of the training program itself and *behaviour and results* considering the changes which occur as a result of training. The majority of evaluations included in this review have focused on the effect of the training program on participants (i.e. the *reaction* and *learning* levels of the Kirkpatrick model). Little evidence currently

supports a relationship between the *reaction and learning* and *behaviour and results*. Thus, while the results of the program evaluations included in this review were overall very positive, it would be optimal to evaluate programs not only from the preceptor perspective but also to consider the effect on work performance, student engagement and student outcomes.⁵⁰ Accurate measurement of student outcomes may be difficult to achieve, particularly given that pre and post intervention data would be required. In the case of a student experiential placement or residency, there are likely to be changes in both student knowledge and attitude over time which may affect their pre and post responses to preceptor evaluations.³

Based on the studies identified in this review, preceptor programs would benefit from the inclusion of training in core skills such as teaching and mentoring, with the addition of site-specific material as necessary. This is supported by the fact that most requirements for training of preceptors involved generic skills e.g. providing feedback, not related to the specific practice setting or the type of trainee.^{5,30,36,42} This also reflects the need for collaboration between colleges of pharmacy or residency programs to share resources and provide a standard framework, with further tailoring to suit individual programs.^{3,8,19,26,36} Initial orientation as well as an ongoing development program are essential to promote continued excellence in precepting and improve preceptor retention.^{5,13,39} Programs should be flexible in their delivery and take into account the time constraints of preceptors and the fact that preceptors are often not remunerated for this work. This is consistent with the preference for targeted and interactive online programs, which also address the geographical issues associated with training preceptors in scattered locations.^{1,5} The provision of opportunities for face-to-face interaction supplementary to online training was found to be desirable but not essential.^{3,45} Strategies should also be put in place to engage, support and retain preceptors as this will ultimately impact their performance and adoption of positive learning practices.^{7,13,39}

While this review has highlighted the paucity of available literature on pharmacy preceptor training programs, the Newcastle-Ottawa quality assessment scale also reflects the overall poor quality of this literature. This may be in part due to the preliminary nature of current research into preceptor training and it would be expected that quality will improve as this emerging area of research continues to develop. Further investigation into the needs of the preceptor in specific environments, as well as student perceptions of the role of the preceptor may be useful in program design. The lack of quality assurance in current preceptor training programs also needs to be addressed, particularly focusing on ways to effectively measure outcomes such as student engagement and learning.

3.6 Conclusion

While the increasing need for pharmacy preceptor training has been highlighted in recent years, it can be seen from this review that there are limited examples of preceptor training and support programs in the literature. Of the preceptor training programs that have been documented, there is significant variation in the design and delivery methods for these programs. Furthermore, there are even fewer examples of post-training evaluations, which are considered essential for quality assurance.^{24-26,32,37,38} While the diversity of current preceptor training programs has been recognised as positive to allow flexibility and reduce barriers to preceptor development, a more structured and evidence based approach to training may be necessary to maintain educational quality, particularly in the area of student evaluation and feedback. Quality assurance should be an essential part of these programs, with evaluations aiming to address not only the preceptor perspective but also confirm a positive link between preceptor training and student performance and outcomes.

3.7 Chapter 3 – References

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Appendix 3.1: Description of Included Studies involving Preceptors of Undergraduate Students with Outcomes Mapped to Domains (n = 13)

Appendix 1. Description of Included Studies Involving Preceptors of Undergraduate Students with Outcomes Mapped to Domains (n=13)

Year, Author, Country	Design	Participants and Setting	Outcomes Mapped to Domains ¹
2011 Ackman, Romanick ³² (Canada)	Program description - computer mediated support network following a preceptor development workshop. Evaluation via electronic survey of participants and virtual computer-based feedback.	Hospital pharmacy preceptors (n=26)	D1 and D2: Workshop included introduction, expectations, providing feedback, teaching pharmaceutical care and rotation design. Four facilitated computer-mediated conferencing sessions with preceptors. D3: Preceptors found support network useful to share experiences and information with other preceptors. Challenges included technology, lack of support and timing of sessions
2009 Boyle, et al ⁴ (US)	Program description - concept, development and implementation of an Academy of Preceptors (2004) at a US University and future implications	Pharmacy preceptors of a USA university - variable numbers each year	D1 and D2: Four academy goals were to recognise preceptor excellence, improve the management of the experiential learning courses, develop preceptor educational skills and facilitate preceptor networking opportunities. Future focus will be on the standardization of experiential programs, training new preceptors and advanced programs for experienced preceptors.
2004 Cerulli, Briceland ³⁷ (US)	Program description -implementation and evaluation of a preceptor training program to enhance preceptor skills and patient care in Community Pharmacy Advanced Practice Experiences (CPAPEs).	Community pharmacy preceptors (n=28); Placement students (n=30)	D1 and D2: Two six-hour face-to-face preceptor training sessions were developed which included pre-session assignments, lectures, discussion groups and role-playing exercises. D3: Preceptors felt that content was relevant, interesting, enhanced their knowledge of pharmaceutical care and increased confidence in precepting. Students rated CPAPE learning experiences positively with 28 out of 30 students indicating that they would recommend this rotation to other students.
2007 Dalton, et al ²⁴ (Australia)	Delivery and evaluation of a national web-based preceptor training program designed specifically for pharmacy preceptors in rural areas in 3 states of Australia. Evaluation via a print-based questionnaire.	Pharmacy Preceptor participants (n=56), Preceptor evaluations (n=19)	D2: Five modules presented, covering introduction, focus on the student, focus on the preceptor, and challenges in precepting and putting the theory into practice. Didactic and self-assessment components, online discussion group and mentoring. D3: Program strengths were ease of access, self-directed learning, interactive nature of program, sharing ideas and feedback. Limitations included technical delays and some issues with clarity of program instructions

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Year, Author, Country	Design	Participants and Setting	Outcomes Mapped to Domains ¹
2013 Johanson ³⁹ (US)	Thesis - pharmacy preceptor recruitment, training and retention strategies - a nation-wide survey of Colleges of Pharmacy. Analysis by descriptive statistics	AACP (American Association of Colleges of Pharmacy) experiential education special interest group (n=233)	D1 and D2: Recommendations were made included a standardized orientation for new preceptors and an annual refresher for existing preceptors, making precepting count towards licensure renewal and creating an online preceptor network.
2017 Loy, et al ³⁵ (US)	Program description - implementation of the layered learning practice model (LLPM) in an academic medical centre - clinical preceptors train residents to precept students.	Hospital senior preceptors, residents and students (numbers not stated)	D1 and D2: Four step process were included orientation, pre-experience planning, implementation and post experience evaluation. The LLPM model has the potential to enhance student learning, improve precepting opportunities and improve preceptor efficiency.
2015 Macedo, et al ³⁸ (US)	Program description and evaluation of three objective structured teaching exercises (OSTEs). Phase 1 - Electronic preceptor training needs survey and student evaluations of preceptors - analysis by qualitative and descriptive methods. Phase 2. OSTE performances scored, preceptor pre and post OSTE surveys conducted - difference analysed by Welch's t-test.	Needs analysis - Community pharmacy preceptors (n=38) and students (n=174), OSTE - preceptor participants (n=15)	D1 and D2: Need for more training in feedback communication identified. D3: OSTE was well received and effective, significant improvement in preceptor confidence in performing skills practiced during the OSTE.
2005 Marriott, et al ⁸ (Australia)	Program design - development of a national strategy for pharmacy preceptor education for rural and remote practitioners in Australia.	Steering committee with representatives of 4 pharmacy schools over 3 states.	D1: Flexible program design to meet the needs of rural preceptors, potential for use for other preceptors and disciplines.
2011 McDuffie, et al ²⁶ (US)	Program description - implementation and assessment of a consortium-based preceptor development program (5 web-based modules) with pharmacy preceptors from 5 universities or colleges in USA. Evaluation via preceptor electronic feedback.	Pharmacy preceptors (n=382)	D1 and D2: Modules built using a variety of digital tools and software programs, including Audacity, Microsoft PowerPoint and Adobe Presenter. D3: 1470 modules evaluated by 382 preceptors. 93% overall indicated agreement with all evaluation statements, 96 % satisfied with the program. A convenient and effective means of providing the required ACPE training.

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Year, Author, Country	Design	Participants and Setting	Outcomes Mapped to Domains ¹
2007 Taylor, et al ²⁷ (Australia)	Program evaluation - qualitative evaluation of a newly developed online rural pharmacist preceptor training program across 3 Australian states via structured preceptor focus groups.	Pharmacy preceptors (n=15)	D3: Participants perceived an improvement in knowledge, preceptor behaviour and their attitude to being a preceptor. They reported a better insight into student learning, gender and cultural issues, as well as increased confidence in their role and job satisfaction.
2015 Tofade, et al ²⁸ (US)	Program description and evaluation - project which encourages pharmacy preceptors to take advantage of the ACPE CPD educational resources (CPD tool) as a framework to guide self-directed reflective practice - preceptor evaluation via an online survey.	Pharmacy preceptors (n=89) across 7 pharmacy schools	D1 and D2: Preceptors invited to undergo free ACPE Preceptor CPD training using pre-recorded webcasts and to document activities using the CPD preceptor portfolio. D3: Online survey six months after training launch. CPD Portfolio provided motivation to reflect, plan and set more defined and realistic goals for students, residents and themselves.
2012 Vos, Trewet ³ (US)	Program description and evaluation of a comprehensive preceptor development program in one college of pharmacy. Two program evaluations - one of preceptor performance (pre and post student evaluations) and the second of teaching strategy (preceptor evaluation).	Pharmacy preceptors (1066 module evaluations) Students - (1900 pre, 3160 post-implementation preceptor evaluations)	D1 and D2: Program included live and recorded online programming, preceptor manual, preceptor newsletter, live events and one-on-one practice site visits. D3: Preceptors felt that the activities enhanced their current knowledge, skills, attitudes and values. Students rated preceptors overall higher post-program.
2012 Woloschuk, Raymond ¹⁰ (Canada)	Program description and evaluation of a preceptor training course for pharmacists and pharmacy technicians within a large regional health authority in Canada. Qualitative course evaluation via written surveys and face-to-face interviews.	Pharmacist preceptors (40 preceptor evaluations, 14 preceptor interviews)	D1 and D2: Course included self-study readings, interactive seminars, structured practice experience and feedback from a preceptor coach. D3: The most useful parts were receiving feedback from a coach, implementing a lesson plan and identifying and using different learning and teaching styles.

Domain 1 (D1) = Design, Domain 2 (D2) = Delivery, Domain 3 (D3) = Evaluation

Appendix 3.2: Description of Included Studies involving Preceptors of Postgraduate Students with Outcomes Mapped to Domains (n = 8)

Appendix 2. Description of Included Studies Involving Preceptors of Postgraduate Students with Outcomes Mapped to Domains (n=8)

Year, Author, Country	Design	Participants and Setting	Outcomes Mapped to Domains ²
2016 Bolt, et al ²⁹ (Canada)	Prospective online survey of current practices in preceptor development, certification and competencies in hospital pharmacy residency programs across Canada.	Hospital pharmacy residency co-ordinators (n= 14)	D1 and D2: Programs were diverse and provided education or orientation to preceptors, mainly as live events or modules. There was a lack of standardized preceptor competencies and/or certification. All programs assessed preceptor performance via formal evaluation by residents.
2018 Davison, et al ²⁵ (UK)	Program description - pilot to identify needs and deliver training to pre-registration supervisors in North-East England. Pre- and post-training evaluation via preceptor electronic questionnaire and semi-structured interviews.	Pharmacy preceptors (Survey n=24, Interviews n=3)	D1 and D2: Three training sessions over a two-month period - content included introduction, principles of work-based learning and teaching, assessment and feedback, managing difficult trainees and quality control. D3: Positive shift in all domains covered by the program, except reflective practice. Potential to improve the standardization of preceptor training in UK.
2014 Elmore, et al ¹³ (US)	Program description - design and implementation of a residency preceptor development program in an academic-community teaching hospital.	Hospital pharmacy preceptors (experienced or in training) (n=26)	D1 and D2: Two program streams, one for experienced preceptors and one for preceptors-in-training. Preceptors meet regularly and share experiences, preceptors-in-training assigned mentors. Evaluation via annual preceptor self-assessment worksheets, formative preceptor peer evaluation and resident evaluation of preceptors.
2017 Frantzen, Ordway ³³ (US)	Program description - The Lean concept to develop frontline clinical staff pharmacists at a four-hospital community health care system as residency program primary preceptors.	Hospital clinical pharmacists (n=20)	D1 and D2: Precepting skills developed using multiple training modalities over 2 years. Program allowed those providing direct patient care services to be the drivers of learning

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Year, Author, Country	Design	Participants and Setting	Outcomes Mapped to Domains ²
2013 Fuller, et al ³⁴ (US)	Program description - design and implementation of a hospital pharmacy residency preceptor development program in a large medical center hospital.	Hospital pharmacy resident preceptors (n=45)	D1 and D2: Preceptors must submit a letter of interest in becoming a preceptor, must complete a preceptor orientation session and must obtain 10 preceptor education credit points every 10 years.
2015 Hartzler, et al ³⁰ (US)	Online survey review of hospital pharmacy residency co-ordinators/preceptors and residents to investigate the current preceptor development programs in place, the challenges involved and future opportunities.	Hospital pharmacy residency co-ordinators/ preceptors and residents (n=1437)	D1 and D2: Primary methods of preceptor development were self-study and continuing education sessions. Less than half of the institutions had a policy for specific preceptor development. Main barrier to preceptor development was lack of time. Main preceptor challenge was providing effective verbal and written feedback. Residents identified good communication as the most important characteristic of a good preceptor.
2017 Phillips, et al ³¹ (US)	Survey of resident program directors (RPDs) to assess their current practices in preceptor-in-training (PIT) programs. Participants contacted by telephone or email to complete a non-validated electronic survey.	Resident program directors of academic medical centres (n=71)	D1 and D2: Only 23 % of respondents had an established PIT program. Skills development included orientation, foundational workshops and ongoing development. Programs encouraged regular attendance at topic discussions and involvement in student rotations.
2014 Watson, et al ³⁶ (US)	Program description -strategy to create a hospital pharmacy preceptor development program for multiple residency programs.	Preceptors from 13 hospital residency and 2 fellowship programs (numbers not stated)	D1 and D2: Program designed to provide a standardized yet multifaceted approach to providing activities that meet the needs of all preceptors regardless of their program or specialty. Potential benefits were improved quality of preceptor development and time efficiency. However, it does not take the place of specific residency programs and individualised preceptor development.

Domain 1 (D1) = Design, Domain 2 (D2) = Delivery, Domain 3 (D3) = Evaluation

Chapter 4 Training needs analysis – Preceptors

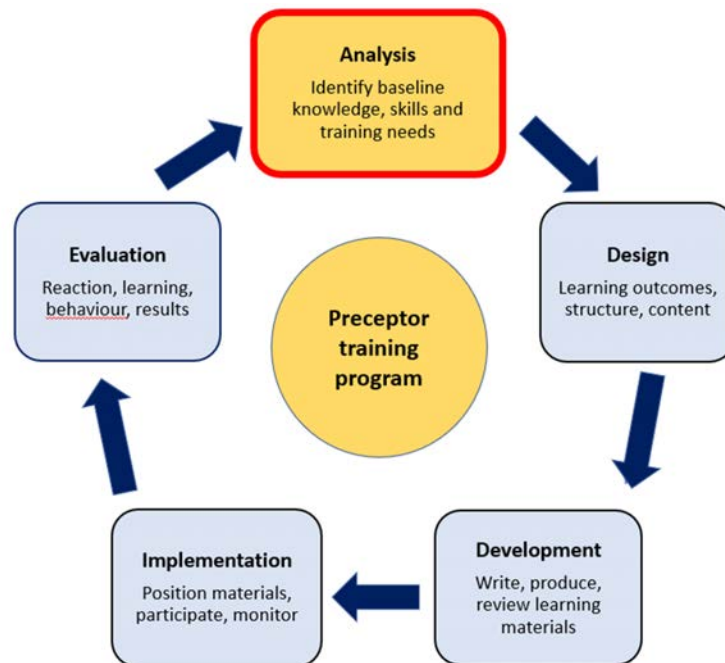
This chapter forms the first part of the preceptor training needs analysis where the perceptions and training needs of JCU preceptors were investigated. This was achieved using a survey and interviews with JCU preceptors. This chapter has been published in Pharmacy Education in the Academic Pharmacy Section Special Issue.

Knott G, Mylrea M, Glass B. What do preceptors want? A mixed methods study exploring pharmacist preceptor perceptions of their training and support needs at a regional Australian University. *Pharm Educ.* 2022; doi:10.46542/pe.2022.224.718

Authors' contributions

Gillian Knott conducted the research and prepared the manuscript. Beverley Glass and Martina Mylrea supervised the research and reviewed the manuscript prior to submission.

Permission obtained from Pharmacy Education for the inclusion of this published journal article.



ADDIE Model of Instruction Design

4.1 Abstract

Background: Global demand for work-ready pharmacy graduates has highlighted the role of pharmacy preceptors and the need for training and support from universities. There remains a lack of consensus on the ideal requirements for preceptor training programs.

Aim: To assess community pharmacy preceptor training and support requirements at a regional Australian University.

Methods: A mixed method study using an online survey of community pharmacy preceptors of James Cook University, followed by qualitative semi-structured interviews.

Results: 55 preceptors completed the survey, and 10 interviews were conducted. Preferred program content included role clarification, a curriculum outline and management of poorly performing students. Demands on time and workload support a flexible online approach to training and highlight the importance of institutional support for optimal preceptor engagement and retention.

Conclusion: Good teaching and communication skills were considered by preceptors to be essential for their primary role in linking theory to practice for pharmacy students during experiential placements.

Keywords: community pharmacy, pharmacy student, preceptor development, preceptor role, preceptor training, preceptor support

4.2 Introduction

Preceptors play a major role in the development of work-ready pharmacy graduates, and their input into pharmacy programs globally continues to increase^{1,2} As practicing pharmacists, preceptors provide a vital link between theory and practice by acting as a role model to guide pharmacy students, interns, foundation trainees and residents in the workplace as they transition to registered health professionals.^{3,4,5} With experiential learning accounting for approximately 30 percent of the United States (US) PharmD curriculum,^{3,6} much attention has been focused in recent years on the quality of preceptors, with many accreditation bodies now mandating training for preceptors, to ensure that they possess the necessary competencies to fulfil their educational role. Guidelines recommend that preceptors are orientated to their program and provided with appropriate preceptor development to align with their responsibilities.⁷⁻¹⁰

With the need for training being widely accepted, the focus has now moved to the design, development, and delivery of preceptor training programs. However, the current available guidelines for preceptor development are broad and provide no in-depth guidance on the design and delivery and the ideal content for inclusion in these programs.¹¹ Also, while quality standards are under consideration, there are at this stage no set competency standards for pharmacy preceptors.^{12,13} In recent years the landscape for experiential placements has been changing. In addition to the traditional community and hospital pharmacy placements, other specialized placement sites are being utilized, including industry, professional organizations, specialist hospital clinics, general practitioner clinics and rural and remote practice.¹ Due to this wide range of experiential placement sites and lack of detail on training requirements, a diversity of preceptor training programs exist.⁵

A recent study in the US found that preceptor orientation and professional development strategies did not always meet the required ACPE standard and that programs varied widely.¹¹ Furthermore, there remains an overall lack of published literature on the ideal elements of a training program in terms of resource allocation, delivery mode, orientation and preceptor development strategies and supports.^{5,11,14} A scoping review of preceptor training programs in 2020 revealed that most published programs originated in the US and were developed for either undergraduate or post-graduate preceptors, with some programs being general and some being specific to preceptors in community or hospital pharmacy. Delivery of training was predominantly by face-to-face seminars or web-based modules, often including a preceptor manual. The content of preceptor training programs was variable but would in most cases include some basic teaching and communication skills and guidance

on the provision of student feedback. Preceptor support measures outlined included newsletters, support networks, training manuals and preceptor mentoring.⁵

A structured evidence-based approach to preceptor training has been recommended, with some flexibility to meet the diverse needs of pharmacist preceptors.^{1,5} Prior to the development of a program, it has been found to be important to identify the primary role of the preceptor, as well as their ideal skills and attributes.¹⁵ In addition, an assessment of the current learning needs of preceptors is important to guide program development.³

This study aimed to identify the training and support requirements of community pharmacist preceptors who are involved in the training of James Cook University (JCU) undergraduate pharmacy students, to inform the development of a preceptor training program.

4.3 Method

Study Design

The James Cook University (JCU) BPharm HONS program requires pharmacy students to undertake 600 hours of experiential placement, which is supported by a cohort of approximately 350 pharmacist preceptors across both community and hospital pharmacy. These preceptors are provided with an electronic preceptor manual and supported by an academic placement coordinator. While an Australia-wide training program is offered to preceptors of intern pharmacists,^{16,17} currently there is no generic training program available to all universities for preceptors of undergraduate students.

The study utilized an explanatory sequential mixed methods approach and included an online cross-sectional survey of current JCU pharmacy community pharmacy preceptors, followed by qualitative semi-structured telephone interviews with a sample of preceptor respondents. Ethics approval for this project was granted by the JCU Human Research Ethics Committee (*H8276*) and informed consent was obtained from each participant prior to the survey and telephone interviews.

Survey

A 28-item anonymous electronic survey was administered using the online platform Qualtrics® and distributed to all of the 250 JCU community pharmacy preceptors. The development of the survey questions was informed by previous studies on preceptor training.^{1,15,18,19} The survey used open, closed, multiple answer and Likert scale questions to investigate preceptor perceptions on their training and support requirements, which included preceptor roles, ideal skills and attributes,

preceptor confidence levels for the various roles and the benefits and barriers to precepting. Preferences in terms of design and delivery of a training program and training and support needs were also investigated. Surveys were piloted for face and content validity prior to administration, using 2 pharmacy academics and 2 community pharmacists. The estimated survey completion time was 15 to 20 minutes.

Interviews

Following the completion of the survey, preceptor respondents were invited to participate in a semi-structured follow-up interview to further explore in-depth their perceptions on the role and important attributes of a preceptor, enablers and barriers to good precepting, and their training and support preferences. Interviews were conducted by phone at a time chosen by the participant and were audio-recorded. Two pilot interviews were conducted to check for question clarity and timing of the interview.

Data analysis

Surveys were analysed using SPSS® (SPSS 27 Statistics for Windows, Armonk, NY: IBM Corp) with descriptive statistics being employed for the quantitative data. Chi squared tests were conducted to examine associations between variables within the dataset, with significance set at < 0.05. Preceptor interviews were transcribed verbatim and imported into NVivo® qualitative analysis software (NVivo; QSR international Pty Ltd, Version 12, 2018) and analysed by qualitative thematic analysis using the process outlined by Braun and Clarke.²⁰ All interviews were read and examined thoroughly, then broadly categorized according to preceptor roles, skills and attributes, enablers and barriers to precepting, training preferences and support requirements. Following this process, initial codes were generated, and data were then grouped into themes. These themes were reviewed and refined, then presented throughout the manuscript along with illustrative quotes.

4.4 Results

62 survey responses were received, with 55 responses being complete, giving a response rate of 22.0%. 63.6% of respondents were female and most pharmacists (83.6%) worked in a practice which employed one to two pharmacists. Almost all pharmacists had graduated with a BPharm from a Queensland university, with seven of the 55 preceptors having additional qualifications. In terms of preceptor experience, 63.6% of respondents had been a preceptor for 3 years or more, while 12.7%

had never precepted a student or intern. 43.6% of preceptors had supervised more than 10 students, while 16.4% had precepted more than 20 students. Most preceptors (83.6%) had not undertaken any previous preceptor training.

Of the 19 preceptors who had agreed to participate in an interview, 10 were chosen with purposive sampling applied to ensure a wide range of preceptor characteristics, including gender, years of practice and practice location. Of the ten preceptor interviewees, 8 were female and 2 were male, with 5 having more than ten years of precepting experience and 5 out of the ten being based in a rural area, which reflect the JCU preceptor cohort. The average length of interview was 25 minutes.

Preceptor role

Based on the interviews, the predominant theme within the role of the preceptor was their linking of theory to practice. Preceptors are seen as introducing the student to the reality of a working community pharmacy. Through their actions, they are thought to provide real-world experiences in a setting where the student may practice in the future.

Preceptors are also seen as educators and mentors to provide guidance, oversee students during placement and assist with workbook activities, in addition to assisting in developing student knowledge.

'I guess the primary roles of the pharmacist preceptor would be to train on the everyday workings of a pharmacy, but also to help develop the student as far as drug knowledge, forensic knowledge – I know we get taught a lot of that at university but kind of, how it relates to real life situations.' Preceptor 1

While the provision of feedback was seen as an important role, interviewees had some difficulty in defining the role of the preceptor in terms of assessment, as it was believed that assessment, particularly of theoretical knowledge, is predominantly the role of the university. However, preceptors felt that they had a role to play in assessing professional behaviour, confidence, and practical skills. Some preceptors indicated that training was required for them to formally assess students, with lack of time often limiting their ability to undertake this task.

'I think feedback's the most important thing, more so than assessing there's not going to be a standardised assessment, because every preceptor will have a different opinion whereas feedback is that's the best way to do it, you know, as soon as they've finished their counselling Or you could do it at the end of the day' Preceptor 2

Preceptor skills, attributes, and confidence levels

Preceptors in the survey considered the importance of a range of preceptor skills and attributes, and the results are presented in Figure 4.1. While most of the listed attributes were thought to be very important or important to preceptors, the most important skill was found to be effective communication and counselling, and this was followed by an interest and enthusiasm for precepting. Of least importance was familiarity with the pharmacy curriculum and being able to manage unmotivated or poorly performing students.

Additionally, the survey found that important preceptor attributes included being 'passionate about being a pharmacist', being 'patient with students' and having 'experience in management'.

Interviewees also identified skills including time management, leadership, motivating and inspiring students, being knowledgeable and competent, being adaptable in their teaching style and having the ability to provide negative feedback.

'That they know what they're doing. That they're well spoken. That they're considerate. That they're knowledgeable. That they inspire the student.' Preceptor 10

'I think that the biggest one is adaptability, particularly in their ability to be able to change their teaching style to suit the role of the student Because everyone learns a little bit differently' Preceptor 3

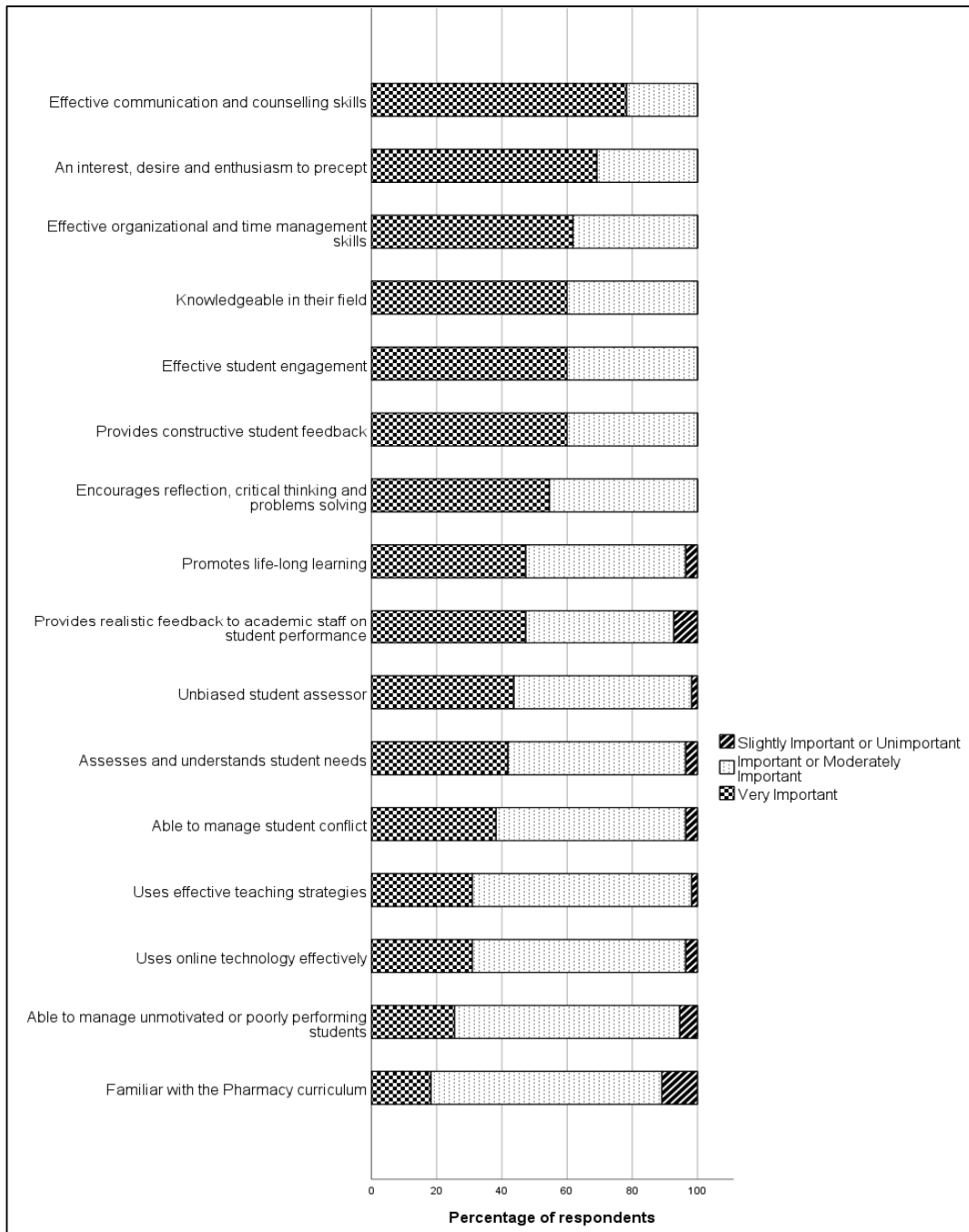


Figure 4.1: Importance of preceptor skills and attributes (n = 55)

Preceptors were also asked in the survey to rate their confidence levels across a range of different precepting skills. Preceptors were most confident in demonstrating effective patient counselling, clinical decision making, and evidence-based practice. They felt least confident in the areas of managing conflict involving a student and discussing poor feedback with students. (Figure 4.2)

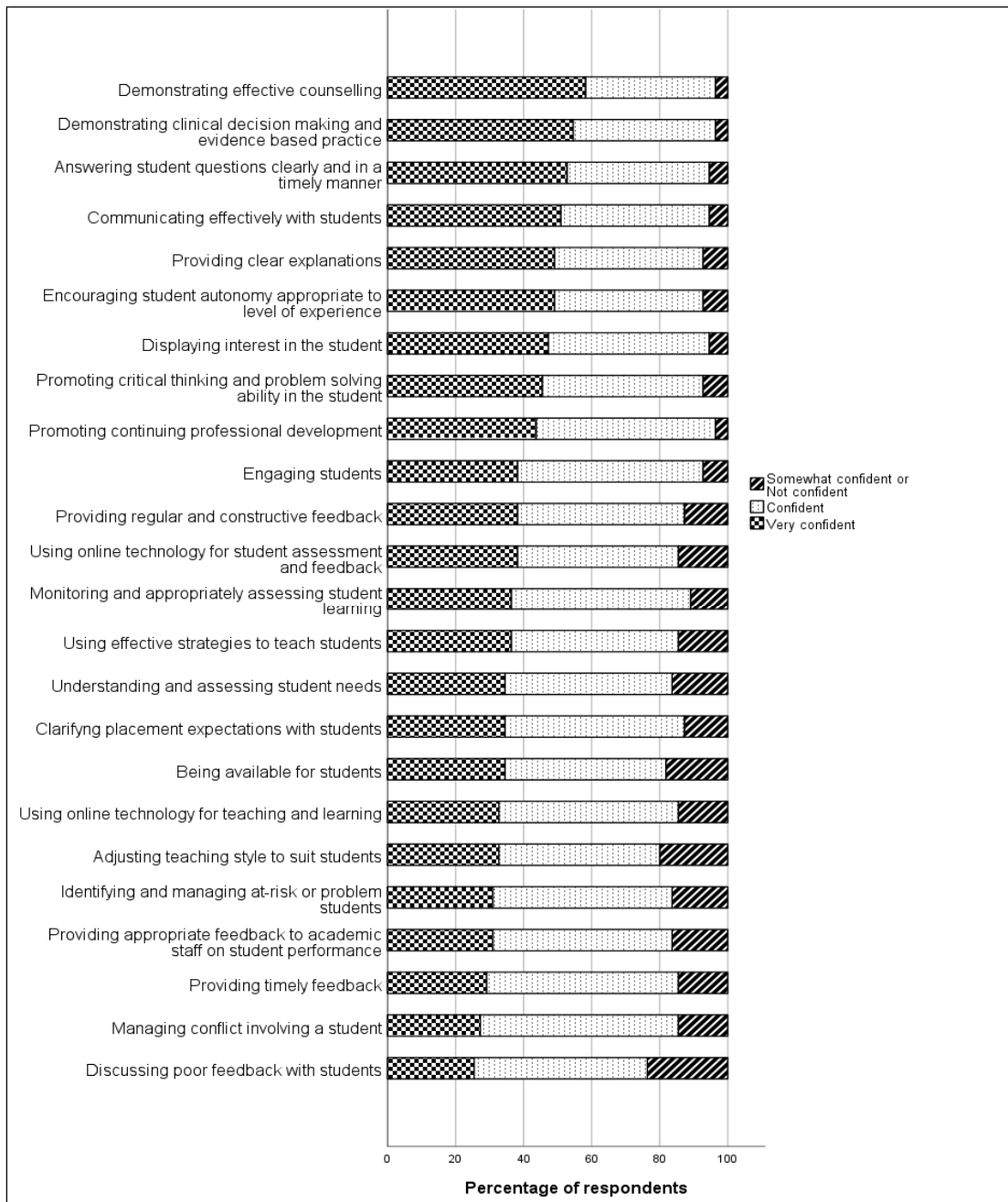


Figure 4.2: Preceptor confidence levels (n = 55)

Following chi squared testing, it was found that there was no association between preceptor experience (in terms of number of student supervisions as well as years of practice as a pharmacist) and preceptor confidence in most of the skills listed in figure 4.2. However, there was a positive

association between the number of student supervisions and preceptor confidence in discussing poor feedback with students ($\chi^2 = 8.9$, $p = 0.003$)

Preceptor training

Online training was considered the method of choice to deliver a preceptor training program, with 60% of survey respondents choosing this format and a further 29% choosing a combination of online and face-to-face training. Many preceptors explained that while the current preceptor manual was useful for the process driven tasks, an online module or interactive session, or a combination, would be additionally useful. While a face-to-face component to training would be desirable, restrictions of work, family and distances would make this impractical. Other suggestions included a webinar or a voice-over power-point module and the use of the Zoom® interactive platform.

'My preference would probably be an online course in the form of a module – being in a rural place, it would be difficult to come for a face-to-face training so online is always good but I do like the manuals as well' Preceptor 1

'[interactive session] it mightn't be a bad idea to have preceptors to engage with each other so that they can, I don't know, bounce off each other and see who's motivating and perhaps encourage each other a bit more.' Preceptor 9

Most suggested content areas for training were regarded in the survey as moderately important to very important, with the most important topics being dealing with unmotivated or poorly performing students, preceptor time management and identifying factors that may affect student performance. Of least importance to preceptors was the provision of information on the structure of the JCU pharmacy curriculum. (Figure 4.3)

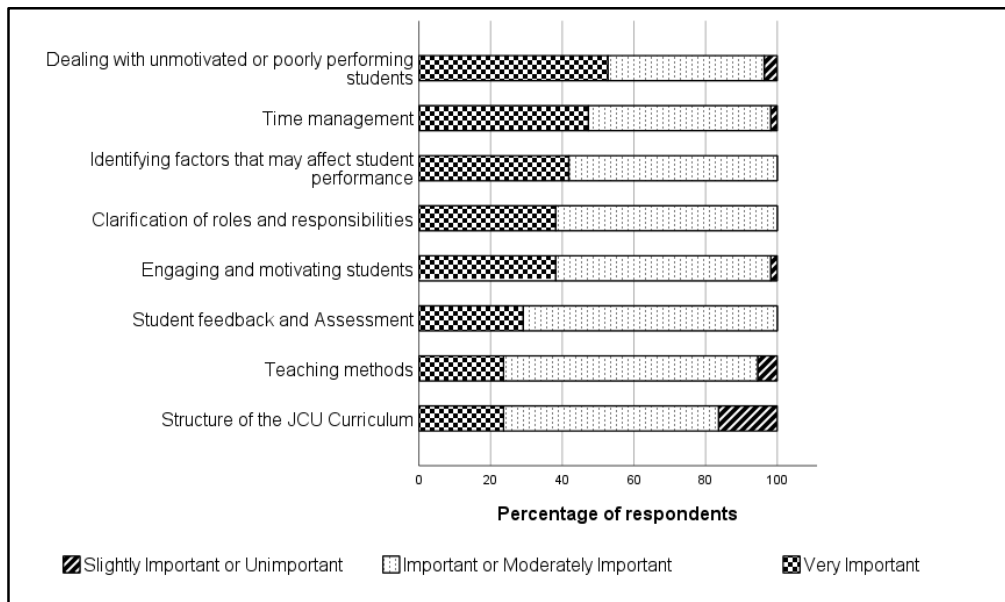


Figure 4.3: Preceptor importance of content for a training programme (n = 55)

During the interviews, the most common request for content inclusion in a preceptor training program was a general overview of the level of skills and knowledge of the placement student to provide optimal guidance to that student. Some information on teaching skills was felt to be valuable, particularly the identification of different student learning styles, the best way to communicate with students and how to deal with difficult behaviour.

‘Basic teaching skills would be good, that’s something you don’t learn at Uni. You know, just some basic teaching skills, being able to pass on knowledge.....’ Preceptor 3

‘I’d like to know where students are up to in their learning and what needs to be achieved in the placement.’ Preceptor 4

‘I guess, probably how to deal with difficult behaviour. So, if you’re having students that..... maybe need more guidance how to deal with that.’ Preceptor 6

Following chi squared testing, there was found to be no association between the experience of the preceptor (number of student supervisions as well as years of practice as a pharmacist) and their preferences for content areas for training. However, there was a negative association between the number of student supervisions and the requirement for training to include the structure of the JCU curriculum ($\chi^2 = 5.2$, $p = 0.022$).

There were mixed views on making preceptor training compulsory, with 23.6% of survey respondents saying yes and 41.8% saying no. 34.6% were unsure, with preceptors again identifying the issue of time and workload. Although compulsory training may be an advantage in terms of assuring precepting consistency, it was felt that the additional time commitment may be a burden to an already busy health professional. An emphasis on flexibility of training and incentive payments were regarded as ways to promote participation in training, as well as the provision of CPD points for training. Regardless of their view on compulsory training, 85.5% of preceptors in the survey indicated that they would be either very likely or likely to attend training if it was provided.

'..... but I don't believe you can make training compulsory unless you pay the preceptor for that role because there's no incentive. They'll just say, "If it's compulsory, then I won't take a student.' Preceptor 5

Preceptor support

Preceptors had mostly positive opinions of the current level of support provide to them by JCU, with 61% of survey respondents reporting that they received good to excellent support. In the main, interview respondents found that placements run quite smoothly, and that support was of more benefit for the relatively new preceptors.

'Yeh, I think it's very good you always do check-ins everything like that ... we know that you are there if we have any concerns or anything... so ... we've never had any issues and it's always been very positive we've always had good support.' Preceptor 2

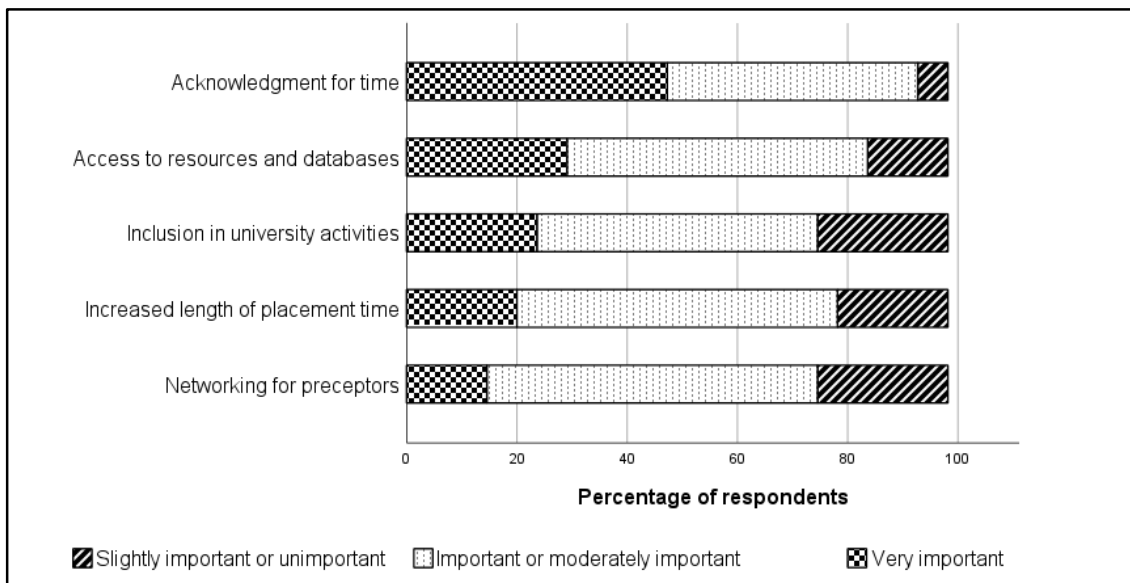


Figure 4.4: Preceptor importance of support measures (n = 55)

The most important preceptor support measure was acknowledgement for preceptor time, although the preferred method of acknowledgement varied, with many being happy with the traditional wall plaques and letters of appreciation. The ability to access university databases and resources was also considered to be important. (Figure 4.4)

‘I couldn’t care less about awards or certificates, but CPD points would be great.’

‘Access to University content – for any possible skill gaps on my part, should students have any questions for subjects I may not have studied for several years.’

Several preceptors felt that they would appreciate additional involvement in university educational activities, particularly in the final year of the degree.

‘I think that would be fantastic if they could be [more involved in school activities], yeah. And access to some university resources would be great.’ Preceptor 8

Barriers and enablers to precepting

The survey and interviews identified that the most significant barrier to precepting was a lack of time, reflected in the high workload of pharmacist preceptors, especially those in community pharmacies with only one pharmacist on duty. Consequently, time management was reported to be

an important skill for preceptors. (Figure 4.1) Other potential barriers to effective precepting included lack of training for this role, appropriate knowledge to precept, remuneration, and space or site capacity in the pharmacy to accommodate a student.

'..... So that balance of trying to find that best experience for the student and the realities of the day, is a little difficult.' Preceptor 5

'[Barriers to precepting] Not having the skillset themselves to feel that they can guide. So not having enough years of experience themselves, so they don't have the time or resources to provide feedback themselves. So that's probably the biggest barriers; time, skillset, and confidence.' Preceptor 10

Preceptors are not remunerated for their precepting and while the majority of preceptors did not expect payment, it was suggested by some that remuneration would be useful to employ additional staff to precept, as well as for time to attend preceptor training. However, the option of having CPD points allocated to training was thought to be preferable to remuneration.

'I think it would be great if preceptors did a course and were paid to do it because it's hard to find the time to do these things unless they're scheduled in or at least that doing a preceptor course creates CPD points for their participation' Preceptor 4

Preceptors were very positive about training as an enabler to precepting, as well as about the benefits of the current JCU preceptor manual, but felt that more information about the different year levels and what the students are learning would be useful, as well as information on the best way to teach students. One interviewed preceptor highlighted the importance of the student themselves being organised.

'I would like a plan if I had a clear cut 'these are the topics that are being focused on But also, I find it easier to have a student when they are organized and they have clear goals like they're taking responsibility for their learning in a way as well' Preceptor 1

In the survey, preceptors were asked how long a pharmacist should be registered to practice prior to becoming a preceptor, with 32 respondents (58.2%) saying between 2 and 3 years. Three respondents out of 55 believed it would depend on the characteristics of the individual pharmacist and was not necessarily related to time, with one respondent elaborating:

'I believe the competency of a pharmacist as a preceptor largely depends on attitude, leadership capacity, and commitment to education of self and others. Early career pharmacists may be as well placed as more experienced pharmacist preceptors, particularly given their recency of experience as students/interns.'

One preceptor felt that they should be able to precept students immediately on registration but should be registered for two years prior to supervising intern pharmacists.

4.5 Discussion

This study has found that there is strong support for a pharmacist preceptor training program at JCU, with delivery via a flexible online approach considered most appropriate. Program content should be closely aligned with JCU preceptor roles, skills and attributes and should likely include basic teaching skills, conflict management and feedback and assessment training. Current preceptor support is reported to be positive overall, with some suggestions for additional involvement in educational activities in the Pharmacy Program at JCU.

The role of the preceptor can be defined using the educational model outlined by Condrey.¹⁹ At the centre of this model is their primary role of linking theory to practice, which was the predominant theme identified by pharmacist preceptors in this study. This requires that preceptors use their skills in four main areas, as a role model, mentor, educator, and assessor. As outlined by Condrey, the development of content for a preceptor training program can be based around the reinforcement of the key concepts associated with these four preceptor skills, with the aim of strengthening the preceptor's ability and confidence in these areas. Identification of key preceptor attributes linked with these preceptor skills is also important as these may also be developed as part of the training program. A study conducted in 2014¹⁵ about student perceptions of a good preceptor identified the most important attributes as being a good role model, showing interest in teaching and relating to students as an individual, which are consistent with the role of a preceptor in Condrey's model. As a role model, preceptors should lead by example, which allows the student to observe and then emulate the actions of the experienced preceptor to develop their own knowledge, attitudes, and practice, as well as a sense of professionalism. A good role model should be knowledgeable and have effective communication skills.²¹ It was noted that having 'effective communication and counselling skills' and being 'knowledgeable in their field' were also identified by preceptors as important skills and preceptor confidence in these areas was correspondingly high. (Figure 4.1) Reinforcement of

these attributes of a role model and a focus on good communication skills would therefore be a useful inclusion in a preceptor training program.

As a mentor, preceptors work alongside the student and guide their actions and activities. The essential skills of a mentor would include engaging and motivating students and being able to manage student conflict.¹⁵ Preceptors in this study felt that being interested and enthusiastic about precepting was important. A study of student perceptions of the behaviours of excellent preceptors supported this view by identifying important attributes as having an interest in student learning, making time for students, and displaying a positive preceptor attitude.¹⁸ However, managing conflict and dealing with unmotivated students was regarded as less important in this study, with correspondingly lower preceptor confidence levels in these areas. Conflict between preceptors and learners was reported to be quite common and lack of confidence of pharmacy preceptors in handling conflict has also been frequently described.^{6,22,23} With conflict resolution being regarded as an aspect of professionalism, training in conflict management has been recommended.²³

As an educator, preceptors should supplement knowledge learnt in the classroom and facilitate the application of theory to the practice. For this purpose, preceptors should be orientated to the university curriculum and be confident in using effective teaching strategies to encourage students to reflect, think critically and problem solve.^{2,11,14} Familiarity with the pharmacy curriculum was rated lower in importance for preceptors in this study, which may be related to the high proportion of preceptors (47.3%) having studied at JCU and therefore already having a good knowledge of how the course is structured. Preceptors however placed high importance on being provided with a general overview of the expected knowledge and skills of their allocated student, thus enabling them to tailor their precepting to suit the student.

Teaching methods were not regarded as an important area for preceptor training, with a correspondingly low confidence level in using effective teaching strategies. However, preceptors identified the need for a training program to include an overview of different learning styles and highlighted the overall importance of skills to manage students, as both areas are not taught in their university degree. Studies have demonstrated an improvement in preceptor confidence in their teaching skills following a training program.^{22,24,25} Teaching skills and strategies such as the One-Minute Preceptor, clinical reasoning and critical thinking are examples of content that have been included in some programs.^{2,24} Educational strategies are a frequent program request from preceptors^{11,18} and are included in most preceptor training programs.^{5,22,26}

As an assessor, the preceptor is required to examine the performance of the student in the practice. A critical component of being an assessor is the provision of feedback, which enables the student to monitor their progress towards meeting their performance criteria.^{5,14} This study suggested that

preceptors should provide unbiased student assessment and feedback that is timely and constructive. However, preceptor confidence levels in both assessment and feedback were relatively low. Some preceptors felt that assessment was not part of their role, particularly the assessment of knowledge. Assessment and feedback are however regarded in the literature as important skills for preceptors.^{5,11,22,27} The findings of this study may indicate a need for clarification of preceptor roles and additional training in this area.

The most significant barrier to training and effective precepting is balancing time and workload, requiring a flexible training program. Advances in technology have brought the use of online methods for training into mainstream practice, as they are practical, easily accessible, able to provide interactive learning opportunities and allow for individual tailoring of training programs.^{2,5,11} On-demand webinars were found to be the most favourable type of online resource for preceptors, followed by live webinars.² Despite this preference for online resources, a recent study found that most preceptor orientation programs in the US were face-to-face, either at the practice site or at the pharmacy school¹¹ While training methods such as a preceptor manual, the Therapeutic Research Center's *Pharmacist's Letter*²⁸ and preceptor training texts²⁹ have been useful, they are generic in nature and do not provide for interaction between preceptors. They would therefore be considered as only an adjunct to online training.¹¹

The engagement and retention of preceptors is crucial to the success of an experiential placement program and a range of strategies have been utilized to support preceptors to fulfil their role within the academic team, particularly given the voluntary nature of their position. As confirmed in this study, research has found that acknowledgement of preceptor time is regarded as one of the most important measures and this is thought to increase the likelihood of preceptors adopting positive learning practices.⁴ Similarly, the request for preceptors to participate more in educational activities in this study, reflects the literature where an increased integration of preceptors into the educational process is thought to potentially strengthen the relationship between the university and the preceptor.^{1,11}

Recommendations from this study include that there is a need for a flexible online preceptor training program which is tailored to suit the individual pharmacy program and also provides for interaction amongst preceptors. The provision of CPD credits for completion of training is desirable. Program content should aim to identify and reinforce the roles and ideal attributes of preceptors. Prior to precepting, an initial orientation to the school's curriculum should be provided, which will allow the preceptor to know what to expect from students in terms of their skills and knowledge, enabling them to tailor their precepting to the individual student. Program content should also include a focus on good communication skills, basic teaching strategies and student management training,

particularly in conflict management. The ability to appropriately assess and provide constructive feedback is seen as a crucial skill for preceptors and therefore is an important inclusion in a training program. Preceptors may however need additional clarity around their role in student assessment. Preceptor appreciation by integration into the university is important, and preceptors should continue to be acknowledged for their time and strategies for additional involvement in school activities should be investigated.

While the voluntary nature of precepting is a challenge globally in mandating attendance,¹¹ the issue of adequate resources and funding for preceptor training has also been raised. It has been identified that there is a need for academic administrators to recognize the importance of preceptor training and appropriately allocate funding for this purpose.^{11,22}

This study had several strengths, which include the mixed methods approach which allowed for both breadth and depth of data from preceptors about their training and support requirements. The anonymous nature of the survey also assisted in reducing the risk of participant response bias. Interview participants were chosen using purposive sampling, which provided a representative range of preceptors. Limitations include the low response rate to the survey and the lack of generalisability of the results, with only community pharmacy preceptors from one regional Australian university being included in the study. The impact of the Covid-19 pandemic on the workload of community pharmacists may also have resulted in a lower participant response rate.

4.6 Conclusion

Preceptors in this study highlighted the importance of good teaching and communication skills to prepare them for their role in educating, guiding, and assessing pharmacy students in the practice setting. Perceived training needs were found to be closely linked to their views on the ideal preceptor roles, skills, and attributes, and should include core skills such as teaching strategies and student management, as well as providing feedback and assessment training. Considering demands on time and workload pressures, the need for a flexible, online training program which includes an acknowledgement of their important and unique role in linking theory to practice for enhanced student learning was identified. The outcomes from this study will contribute to the increasing knowledge base around the requirements for preceptor training and support. With experiential education being a key component of pharmacy curricula, the optimization of training and support for preceptors will contribute significantly to the competency of pharmacy graduates.

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Chapter 5 Training needs analysis - Students

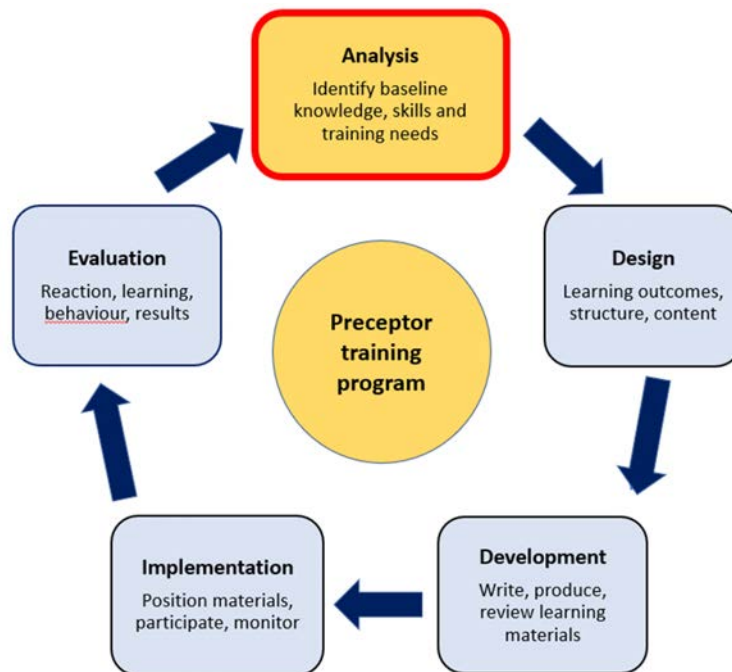
This chapter forms the second part of the preceptor training needs analysis where the perceptions of students on preceptor ideal roles, skills and attributes were investigated, using a survey and focus group interviews. The student insight into preceptor training is important as the aim of training is to improve preceptor performance and thus provide a benefit to students in terms of an improved placement experience for the student. This chapter has been published in *Pharmacy*.

Knott GJ, Mylrea MF, Glass BD. Pharmacy student perceptions of the roles and attributes of pharmacist preceptors in Australia. *Pharmacy*. 2022; doi:10.3390/pharmacy10060169

Authors' contributions

Gillian Knott conducted the research and prepared the manuscript. Beverley Glass and Martina Mylrea supervised the research and reviewed the manuscript prior to submission.

Permission obtained from Pharmacy for the inclusion of this published journal article



ADDIE Model of Instructional Design

5.1 Abstract

The pharmacist preceptor is key to the success of pharmacy student experiential placements with a recent focus being placed on the quality of preceptors. This study sought to investigate student perceptions of the ideal roles and attributes of pharmacist preceptors to inform the development of a preceptor training program. This was a mixed methods study using an online survey of pharmacy students from levels two to four of an undergraduate pharmacy honours program at a regional Australian university followed by qualitative, semi-structured focus group interviews. Surveys were analysed using descriptive statistics and content analysis while interviews were thematically analysed. Thirty-seven complete survey responses were received, and three student focus groups were conducted. Students identified the key role of preceptors in linking theory to practice and felt that the role of the preceptor in student assessment should focus on practical skills, such as communication and professionalism. There was overall strong agreement between the quantitative and qualitative findings on the ideal preceptor attributes with good communication, enthusiasm for the profession and the provision of clear and honest student feedback thought to be most important. Students regarded these attributes as essential for a good preceptor–student relationship to promote learning in the practice environment.

Keywords: preceptor training, role model, student perceptions, assessor; mentor; educator, experiential placement

5.2 Introduction

Pharmacist preceptors play an integral role in developing the skills of pharmacy students during their experiential placements. With the significant increase in the amount as well as the diversity of experiential placements within pharmacy curricula worldwide, the issue of preceptor quality has been raised.^{1,2} It has been reported that the quality of student experiential training is highly dependent on the preceptor, and there is a consensus that training and support for preceptors are essential to ensure that they are competent and prepared for their role.^{3,4} However, the ideal structure and content of preceptor training programs are still under discussion. An examination of the roles, skills and attributes of the ideal preceptor is an important part of identifying preceptor training requirements. This should consider the opinions of all key stakeholders in the placement experience, which includes preceptors, academic staff and students.^{5,6}

A fundamental part of the preceptor's role is to relate the theoretical knowledge learnt at university to the realities of pharmacy practice. To achieve this purpose, preceptors have many roles and responsibilities, including being role models, educators, mentors, and assessors to pharmacy students.⁷ Several studies have investigated preceptor roles and attributes from the preceptor perspective.^{6,8-11} Preceptors agree their main role is linking theory to practice and regard the key elements of their job as acting as a professional role model, educating and providing guidance and feedback on student tasks and activities. They perceive their role in student assessment to predominantly be the evaluation of professional behaviour and practical skills.⁶ In 2019, DeAngelis reported that the essential skills of a preceptor should include professionalism, good communication and interpersonal skills.¹¹ Investigations of preceptor opinions have also identified some of the challenges of precepting that may need to be addressed with training, particularly regarding balancing time and workload when dealing with students and the provision of effective written and verbal feedback.^{8,10,12,13}

From the student perspective, research has also identified a range of ideal attributes and skills that they regard as important for preceptors to provide optimal benefit for the preceptee. This includes being a good role model, being interested in teaching, relating to students as an individual and giving good direction and feedback.^{3,14-16} With pharmacy students being the main beneficiaries of precepting, insight into their experiences with preceptors and their opinions on roles, ideal skills and attributes is essential to provide a balanced and holistic perspective of preceptor training requirements. Therefore, this study focused on the perceptions of pharmacy students on the ideal roles of the James Cook University (JCU) preceptor and their associated skills and attributes with the aim of informing the design and development of a pharmacist preceptor training program.

5.3 Materials and Methods

5.3.1 Study Design and Setting

A diverse group of pharmacist preceptors provide experiential placement opportunities for James Cook University (JCU) BPharm (Hons) students. During their degree, each student is required to spend 600 hours across various placement sites, mainly in community and hospital pharmacies and in both rural and urban areas under the guidance of a pharmacist preceptor.

An explanatory sequential mixed method design was utilized for this study, which included an online student survey and a series of student focus groups.

5.3.2 Quantitative—Survey

The survey was administered using the Qualtrics[®] survey platform to all JCU students in levels 2, 3 and 4 of the BPharm (Hons) program, a total of 68 students. Students were invited to participate through a central pharmacy administration email which provided participant information and a link to the survey.

The survey questions were informed by the aim of the study and review of the literature to identify potential preceptor roles and recommended skills and attributes.^{3,5,17,18} A process of evaluation was conducted by the researchers, and consensus was reached on the content of the final questions included in the survey to assure questions addressed the study's aims. To start the survey, general demographic information was collected, including age, gender, year level and past placement experiences. Using a five-point Likert scale, students were asked to rate the importance of 15 preceptor roles as 1, unimportant; 2, slightly important; 3, moderately important; 4, important or 5, very important. Similarly, students were asked to rate the importance of 21 skills and attributes that a preceptor should possess. An open-response question was included for each of the Likert scale questions for students to provide additional comments if required. The survey was piloted by three health professional students for face validity and completion time with minor changes being made prior to survey distribution. The estimated completion time for the survey was 10 min. Upon completion of the survey, students were invited to participate in a focus group interview to further explore their opinions of preceptor roles and ideal attributes. Students were asked to provide their contact details for the purpose of arranging an interview. As an incentive, all students who participated in the focus group interviews received a \$20 coffee voucher.

Survey responses were transferred into an SPSS® file (SPSS 27 Statistics for Windows, Armonk, NY: IBM Corp) with the quantitative data being analysed using descriptive statistics and content analysis being utilized for the open-response questions. Chi-squared tests were conducted to determine any association between responses and demographic variables with significance set at 0.05. Content analysis performed on the open responses of the students about preceptor roles, skills and attributes categorized responses according to Condrey's four main roles of a preceptor: role model, educator, mentor, or assessor.⁷

5.3.3 Qualitative—Focus Group Interviews

Three semi-structured focus group interviews were conducted, one for each of the pharmacy year levels (Years 2, 3 and 4), with each focus group consisting of three to four students. Students were chosen for the focus group interviews based on availability and purposive sampling to ensure a mix of male and female participants. Invitations were sent by email along with a participant information sheet. Interview questions were informed by the results of the student survey and included 4 main questions. The first two questions explored students' opinions on preceptor roles as well as the skills and attributes of the ideal preceptor. Students were then asked to describe their past experiences with preceptors, including both their positive and negative experiences. Questions were modified for the Year 2 focus group to allow for their minimal (if any) past experience with preceptors. Interview questions were assessed by each member of the research team for face and content validity prior to the focus groups. Interviews were conducted face-to-face in the JCU pharmacy practice rooms, and prior to the commencement of the interview by the principal researcher, students were provided with a participant information sheet and asked to sign a participation consent form. Another research team member was present to take notes to understand aspects of the focus group not in the verbatim notes and to observe whether participants showed nonverbal agreement or dissent through nodding, head shaking or other body language. Notes were cleaned, completed and used for transcription after the focus group.

Focus group interviews were recorded and transcribed verbatim and then thematically analysed using the method outlined by Braun and Clarke¹⁹ using NVivo. (NVivo; QSR International Pty Ltd., Version 12, 2018) Interview data were initially coded into three broad categories which included past experiences with preceptors, ideal preceptor roles and attributes and suggestions for enhanced placement experiences. Within each of these categories, themes were identified and presented in this manuscript.

5.3.4 Data Integration

Quantitative data from the survey and qualitative focus group data from the focus groups related to preceptor roles, skills and attributes were integrated reflecting Condrey's approach to categorization of the four roles of preceptors as a role model, educator, mentor or assessor. Within these categories, data were reviewed and refined and then discussed as themes in this manuscript using a sample of illustrative quotes.

5.4 Results

5.4.1 Quantitative—Survey Analysis

Forty-two student survey responses were received, with 37 being complete, giving a response rate of 54.4%. Most students (73.0%) were 22 years of age or younger, and 73.0% were female, which reflects the current gender distribution of pharmacy students at JCU. All year levels were represented in the responses which include 29.7% of level two, 43.3% of level three and 27.0% of level four students. A total of 81.1% of students had attended at least one previous experiential placement in either a community pharmacy (67.6%) or a hospital pharmacy (54.0%).

Students were asked in the survey about the importance of a range of preceptor roles, and the results are shown in Figure 5.1. Of the 21 potential roles for preceptors, students perceived the three most important to be communicating effectively with students, providing clear explanations, and demonstrating good decision making and evidence-based practice, with all three of these roles being considered very important to 81.6% of respondents. The area of assessment was also important; they valued the provision of realistic and unbiased assessment (79.0% considered this very important) as well as appropriate feedback on assessment (71.1% considered this very important). Of least importance were the preceptor's role in managing conflict and the provision of career advice, with 31.6% and 44.7% of participants regarding these roles as very important.

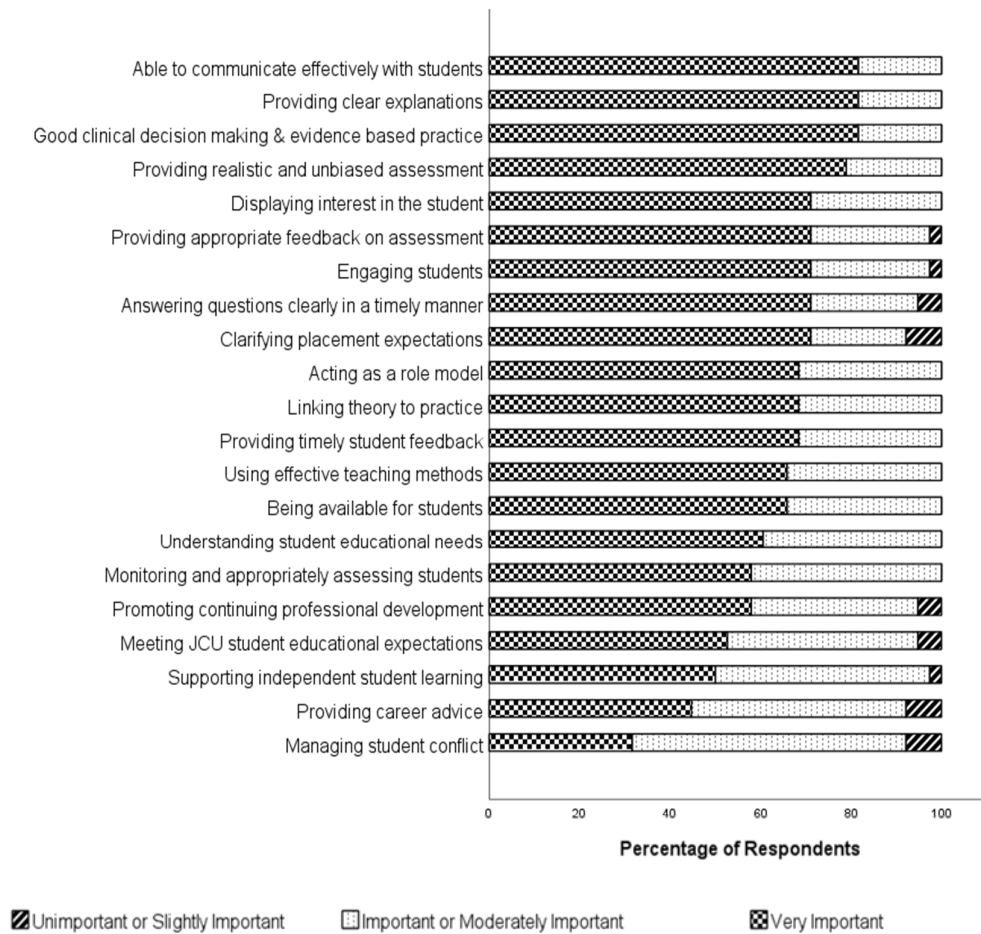


Figure 5.1: Student Opinions on Importance of Preceptor Roles (*N* = 37)

The survey also investigated student opinions on the ideal skills and attributes of a pharmacist preceptor. The results for this question are provided in Figure 5.2. Of the 15 skills and attributes of the ideal preceptor, the three most important were revealed as being an effective communicator and counsellor (89.5% considered this very important), being enthusiastic and supportive of the student (84.2% considered this very important) and engaging effectively with the student (76.4% considered this very important). The least important skills were their ability to effectively use online technology (36.8% considered this very important) and their ability to manage student conflict (42.1% considered this very important). Familiarity with the pharmacy curriculum was also relatively low in importance.

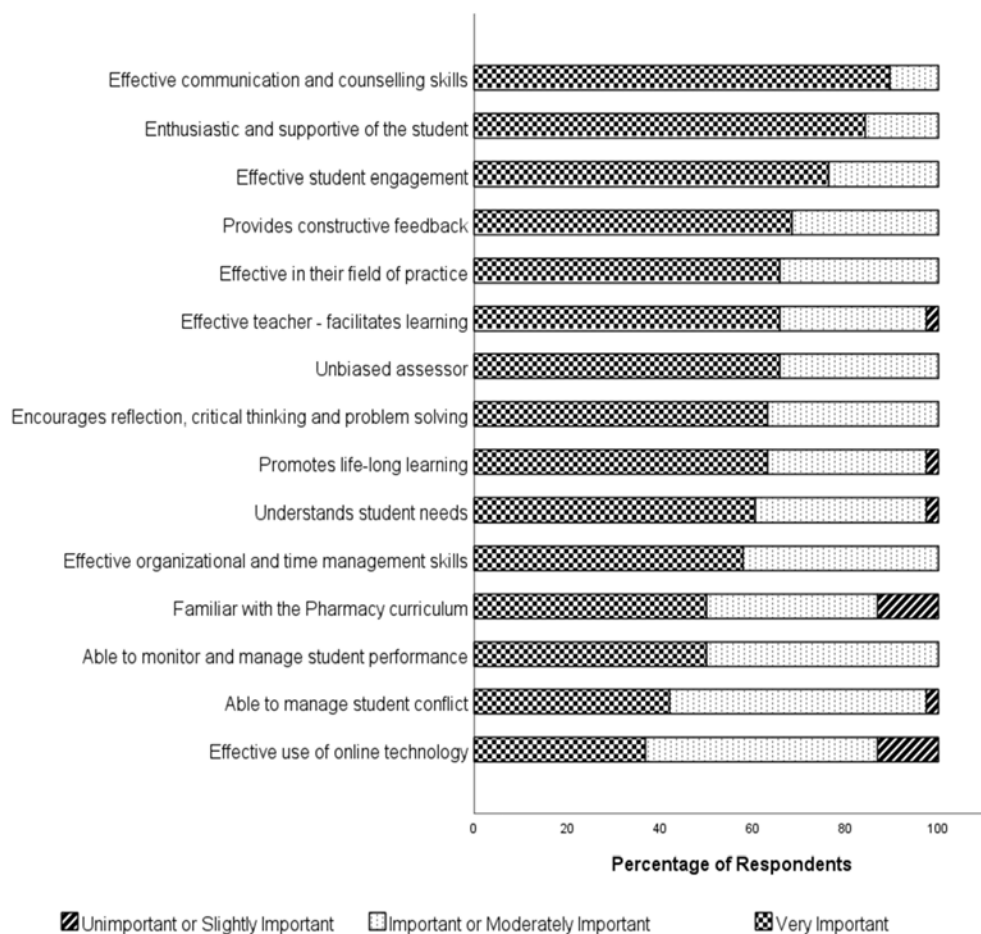


Figure 5.2: Student Opinions on Importance of Preceptor Skills and Attributes (N = 37)

5.4.2 Qualitative—Content Analysis

Content analysis of the open-ended questions in the survey revealed that the mentoring role of a preceptor was particularly highly valued with 16 comments provided. Their roles as educators and role models were also considered to be important (10 and seven comments, respectively), with only three open comments on the preceptor's role as an assessor. Ideal attributes described by students included being encouraging, supportive, motivating, engaging and enthusiastic. Students also described a range of important preceptor skills, including effective communication, good clinical knowledge, being able to explain tasks clearly and being able to provide appropriate feedback on assessment. Table 5.1 shows the themes identified from the content analysis, and Table 5.2 provides a selection of illustrative quotes relating to these themes.

Table 5.1: Content Analysis—Student opinions of important preceptor skills and attributes. (n = 34)

Role	Themes
Role Model	Professional behaviour Good communication (2) * Patient centred care Managing difficult patients Good clinical knowledge Realistic student experiences
Educator	Safe learning environment Providing hands-on activities (3) * Explaining tasks clearly Explaining the reasons why we perform tasks Understanding the student Patience Understand their educational role Providing opportunities for student questions
Mentor	Engaging with the student (2) * Motivating Enthusiastic about placement (2) * Supportive (4) * Approachable Friendly Understanding (2) * Being available for questions
Assessor	Clear assessment requirements Good feedback on assessment (2) *

* Indicates the number of quotes greater than one which identified this theme.

Table 5.2: Content Analysis – Selected Student Quotes on Preceptor Roles and Attributes

Role	Quotes
Role Model	‘Providing realistic experiences to students in the pharmacy’ ‘Model patient-centred care approaches as much as practicable’ ‘That they know what they are talking about’
Educator	‘Providing a safe and encouraging environment to facilitate learning and opportunities for students to ask questions which may further learning’ ‘Taking time to explain to students how to do tasks clearly and methodically, why we do certain tasks and being patient’ ‘Good preceptors realise that students aren’t the finished product yet and don’t get frustrated if they have some gaps in knowledge’
Mentor	‘Motivators of students to improve and be a better version of themselves’ ‘Engaging and genuinely interested in helping student to learn about being a pharmacist’ ‘Enthusiasm for student placement and taking the time for education opportunities’ ‘Should be relatable so that students feel comfortable approaching for guidance’
Assessor	‘Explain requirements for assessments clearly so there is no confusion’ ‘Should have the ability to justify and give tips for improvement based on marks and assessment they provide’

5.4.3 Quantitative Survey—Identifying Correlations between Variables

A Chi-squared test of independence showed that there was no association between student age, gender or previous placement experience and their opinions on the roles and ideal skills and attributes of a preceptor. However, there was a positive association between the student year level and the importance of preceptor familiarity with the JCU pharmacy curriculum, with this being more important in the later years of the course, $\chi^2 (2, N = 37) = 8.2, p = 0.017$. There was also a significant association between student year level and the preceptor's role in meeting JCU student educational expectations, $\chi^2 (2, N = 37) = 6.7, p = 0.036$.

5.4.4 Qualitative—Focus Group Interview Analysis

Experiences with Preceptors

Based on the number of student responses to focus group participation, it was decided to conduct three focus groups. All three Year Two students who agreed to participate were invited, as were the three Year Four students. While four students were invited to participate in the Year Three focus group, one student did not present on the day; therefore, this focus group also consisted of three students. Of the nine students involved, seven were female and two were male. The average length of the focus group interviews was 36 minutes.

Focus group students discussed both positive and negative experiences with preceptors. Students were appreciative of their preceptor sharing their knowledge, taking the time to explain tasks and procedures to them and providing a range of opportunities to participate in practice. Preceptor skills and qualities that were highly valued during placement included flexibility in their teaching style, good organizational skills, enthusiasm and a recognition of the student's prior knowledge and experiences when interacting with them.

“... overall really positive ... they were good at letting me have a go at things but then also, at certain times, being able to ... step in and either take over, or just basically model how to do something” (Year Four Male)

One area of negativity was the consistency of information provided by the preceptor, with some preceptors taking opportunities to communicate with students and others relating poorly, which resulted in a variable student experience and led to some students being disadvantaged.

“I guess [I would like] uniform training for all students, so some don’t get a more in-depth description [explanation] in one group, causing the other group to be at a disadvantage.”

(Year Two Male on a group placement)

While overall, preceptors were found to be enthusiastic, several students mentioned that their preceptor had a negative attitude and lacked motivation towards their job, which was thought negatively impact student motivation and reflect poorly on the profession. The absence of their designated preceptor from the placement had implications, impacting the provision of informed and student-specific assessment and feedback. Several students identified the hospital environment as a particular problem with the use of multiple preceptors.

“... You have your preceptor meeting you the first day and then you see them in and out of the hospital but you’re not actually working with them, it’s not until the last day where it’s like ‘here’s your feedback’ and it’s not a true reflection of what you have done.”

(Year Four Female)

Preceptor Roles, Skills, and Attributes

Students identified a range of roles, skills, and attributes of preceptors as important. As role models, they felt that preceptors were examples of professionals in their chosen careers and, therefore, should display behaviours expected of them in the future.

“You look up to them. You want to develop the same techniques that they do, you want to aim to be as good as they are when you are practicing ...”

(Year Two Female)

Students felt that it was important that preceptors act as guides or mentors and establish a relationship with the student, which would make them feel comfortable with asking questions.

“... establishing a good relationship between the pharmacist and the students on placement ... because if you have a good relationship ... then you’ll feel more comfortable in asking questions ...”

(Year Two Female)

“I think leadership is important ... Being able to manage different people and know how they interact ..., knowledge is very important and also the ability to give good feedback ...,”

constructive criticism is important, I know that they probably think that you don't want to hear it but that's how you learn, ..." (Year Three Female)

In terms of their educational role, students identified that they wanted preceptors to make the link between theory and practice and to focus on teaching the 'hands-on' skills that students may not have covered so well at the university. They also suggested that it was important that preceptors understood the pharmacy curriculum and therefore the level of the student that they are precepting. Several students highlighted that some preceptors had unrealistic expectations of them. It was also felt that some preceptors were using the student as a replacement for staff on leave, which was not the purpose of an experiential placement.

"Maybe if the preceptors were in touch with our curriculum ... then they can help relay back to assessing and using that practical setting to apply the knowledge and skills that we learn in classes." (Year Two Female)

"Yes, I think, just them [preceptors] knowing what level we are at and where we're expected to be ... rather than them comparing us to maybe ... their interns ..." (Year Three Female)

As preceptor expectations may vary between placements, it was suggested that preceptors should ensure that they outline their expectations at the beginning of placement so that students are aware of what is required of them.

"Probably another thing is to outline their expectations, because every pharmacist has a different way of doing things, different expectations of the level and quality of work ... so ... it's important for them to show you at the beginning what they expect of you." (Year Four Female)

Students were asked about the role of a preceptor in assessment and feedback. It was felt that preceptors were more suited to the assessment of practical skills, such as communication and professionalism. Several students felt that their pharmacists were constantly assessing them informally, as they were always actively listening and providing feedback, which was felt to be of benefit to student growth and development.

“In terms of assessing, I think students learn more when they are in a practical setting. I personally learn better in a practical setting, and I think it’s important that preceptors assess that for us.” (Year Two Female)

“ ... in terms of assessment... there’s assessment from the Uni’s end, which is ‘are you satisfactory or not’ ... there’s some grading within that but ultimately it accounts for such a small amount of the grade. So I think more assessment in terms of how can you professionally improve ... communication skills etc... you know, skills assessment in terms of real-life skills, not necessarily in terms of a grade.” (Year Four Male)

Finally, the overall importance of good communication skills was a universal comment from students.

“I think communication is a really important part ... and being able to work well in a team—essentially that is a big part of pharmacy, regardless of where you end up ... you need to be able to have those skills ... and be able to relay that to a student ...” (Year Four Female)

Suggestions for Improvement

Students identified the need for preceptor training or continuing professional development to improve the consistency of the placement experience.

“... if you have one preceptor that’s really great at explaining and elaborating on points and one that’s not so much, then the students in that group may not benefit as much ...” (Year Two Female on a group placement)

“If the preceptors themselves don’t feel that confident in that teaching setting, then probably you need to do some sort of professional development like there already is that pharmacists have to do that [CPD].....” (Year Two Female)

The expectations of preceptors were thought often to be unreasonable; therefore, students recommended that some expectations are set by the university for the student.

“Our intern had 3 days off for intern training and for those three days they did not replace the intern, so I wasn’t considered an extra, I was a staff member then. and that was in the first week, so when you’re new to a pharmacy and they’re expecting you to be doing all the jobs that an intern was doing when they’ve been there for months....” (Year Three Female)

“...it’s possible that you can go on a placement that the preceptors might assume that you already know what you are doing, but then they’ve got an expectation about what they want you to do so I think it’s important that ... even for a few counsellings ... that they actually model what their expectations are to you” (Year Four Male)

There was much discussion about preceptor evaluations, which were often thought to be inconsistent with student performance, with preceptors not being discerning with regard to their evaluations. It was felt to be important to not only receive regular feedback but also honest and realistic feedback, whilst also being perceptive and considering individual student sensitivity.

“... I think there’d probably need to be better standards ... because with the [student] evaluation that they did at the end, results were quite varied ... but it just seems like maybe there is inconsistency with how they evaluate you.” (Year Three Female)

In the Year Four focus group, it was suggested that, in the same way that preceptors provide feedback on their students, an opportunity for students to give feedback on their preceptors should be provided, which was reinforced by all other group members.

5.4.5 Preceptor Roles, Skills and Attributes—Data Integration

Condrey’s educational model categorized the four roles of the preceptor as a role model, educator, mentor, and assessor.

As role models, students in the survey identified the importance of preceptors demonstrating good communication skills, professional behaviour, and clinical knowledge. This was reinforced by the focus group participants who looked to preceptors to exemplify how they should practice and behave in the future.

As a mentor, students in the survey felt that preceptors should be engaging, enthusiastic, motivating, and supportive. They also should be understanding and approachable. Further to this,

focus group participants recognized the importance of establishing a relationship with the student, having leadership skills and being able to manage people.

According to the survey, the role of the preceptor as an educator focuses on understanding the purpose of the placement, setting expectations, providing clear explanations, and establishing a safe learning environment. In the practice setting, students in the focus group additionally discussed the importance of providing 'hands-on' activities for students, linking theory to practice, and having an understanding of the university curriculum to assist in identifying individual student needs.

As an assessor, the preceptor role was identified in the survey as providing realistic and unbiased assessment and appropriate feedback on that assessment. Assessment requirements should be clear, and feedback on assessment should include advice on how to improve in the future. Focus group students felt that preceptors were more suited to the assessment of practical skills and that feedback on assessment should be honest, realistic, and constructive. They also felt that regular informal feedback on everyday tasks was important for student growth and development.

5.5 Discussion

This study provides valuable insight into the perceptions of JCU pharmacy students on the roles and ideal skills and attributes of pharmacist preceptors. Students attached importance to the role of the preceptor in providing real-life 'hands-on' pharmacy experiences and linking theory to practice. In terms of ideal skills and attributes, the importance of having a good preceptor–student relationship was highlighted, with emphasis on clear and effective communication, enthusiasm for precepting and a consistent and realistic approach to assessment and feedback.

Past research has indicated that some of the most significant student indicators of preceptor excellence include interest or enthusiasm for teaching, relating to students as an individual and good organization skills.^{3,16} These outcomes align with those of this study, with students reportedly being grateful to have preceptors who were enthusiastic, well-organized and had a flexible approach to teaching.

Conversely, students were critical of preceptors who were unmotivated, with some of their negative experiences relating to the poor attitude and lack of interest of some pharmacist preceptors as well as inconsistencies in the provision of advice and feedback. In 2019, DeAngelis looked at preceptor perceptions in a range of preceptor roles or tasks based on their importance, degree of difficulty and frequency. It was identified that while the role of motivating students to be active participants was an important and frequent task of preceptors, it was also regarded as a difficult task.¹¹ From the student perspective, the importance of good communication between preceptor and student is well

documented, with students regarding the establishment of a meaningful preceptor–student relationship as important to facilitate and nurture student development and encourage independent learning.^{16,17}

The educational model outlined by Condrey identifies the four main roles of preceptors as role models, educators, mentors, and assessors.⁷ Through these four roles, the preceptor can fulfil their key responsibilities in linking theory to practice. According to Bochenek, the main attributes of an effective role model are being a good communicator and being knowledgeable.¹⁴ Students in this study felt that preceptors should set an example and provide a standard for them to achieve, particularly in terms of good clinical decision making and evidence-based practice. O’Sullivan et al. similarly found that students would like their preceptors to demonstrate expertise in their practice and be able to use their communication skills to stimulate discussions with students and provide effective feedback.¹⁶

As an educator, students in the focus groups identified the need for preceptors to be ‘in touch’ with the JCU pharmacy curriculum while both the survey and focus groups found that students placed importance on their preceptors providing clear explanations and having realistic expectations. Knowledge of the curriculum would allow the preceptor to gauge the level of experience of the student and thus provide appropriate learning opportunities as well as enable preceptors to have realistic expectations of their students. O’Sullivan et al. found that students liked their preceptors to be able to tailor their teaching to meet student needs and interests as well as provide clear feedback to students, which will encourage the development of critical thinking and aid in problem solving. They also identified the importance of preceptors being clear in their expectations.¹⁶ However, students in our study also noted that preceptor expectations of students varied with the individual preceptor, which highlights the need for training and appropriate competency standards to provide a consistent level of precepting.²⁰⁻²² The inclusion of educational training for preceptors is supported by Bochenek, who found that while preceptors of pharmacy residents were thought to be effective as role models and mentors, they were less effective in their teaching and clinical skills.¹⁴ Furthermore, a study by AlArifi on preceptee satisfaction with preceptors of Pharm D students in Saudi Arabia found that while the majority of students believed their preceptors to be knowledgeable, less than half of the students were satisfied with their preceptors’ clinical teaching skills.²³

Both survey and focus group results indicate that the mentoring role of the preceptor was of high importance to students, with significant value placed on establishing a strong student–preceptor relationship. This focus on the mentoring role of the preceptor is highlighted by Young et al. in 2014,

who found that personal attributes rather than knowledge or credentials were of greater importance to student pharmacists as a measure of preceptor excellence.³

The mentoring role includes managing student conflict, despite this being an area considered in this study to be of relatively low importance to students. Kendrick et al. found that conflict in experiential education was thought to be a common occurrence and was reported by both preceptors and learners.²⁴ They noted that preceptors were more likely to take the initiative to resolve conflict, which may reflect the unequal power relationship between preceptor and learner and may be the reason why this topic may not be seen as important to students. It was determined in this study that preceptors lacked overall confidence in managing conflict and that training in this area would be important for both preceptors and learners, with studies by Assemi et al. and Phillips et al. also reflecting this view.^{13,25}

The role of the preceptor in assessment during experiential placement is unclear. Students felt that the preceptor's role in formal assessment was of the least importance and should be limited to the assessment of practice-based tasks, such as communication and professionalism. In Australia, Kirshbaum reported that many universities do not require preceptor feedback or assessment in the evaluation of student placement, and this may be the reason for the low ranking of importance from students.²⁶ A key issue raised was in the consistency of assessment and feedback, where it was felt that some preceptors were not discerning, which led to students receiving a result that did not appropriately reflect their performance. Similarly, in the provision of feedback, student focus groups identified a lack of consistency in the amount and quality of feedback provided by individual preceptors. In the provision of student feedback in the clinical environment, it is recommended that it is constructive, realistic, meaningful, honest and unbiased.²⁷⁻²⁹ In Young's student survey, it was found that being readily available for questions and giving good direction and feedback was an important indicator of preceptor excellence.³ It was further noted by Sonthisombat that many preceptors focused on the provision of clinical information rather than understanding the learning styles of the student, which may be detrimental to the quality of their feedback.¹⁵ Danielson et al. suggested that maintaining the quality of student assessment was a concern for many preceptors.³⁰ Lucas et al. identified the difficulties involved in providing consistency in student evaluation and feedback processes, particularly given the variation in placement environments. However, they also considered it desirable to have some consistency in these processes.¹⁰

Limitations of this study include the fact that it was conducted at a single university, which may not be representative of the wider population of pharmacy students. While the sample size was relatively small, the response rate of more than 50% in the survey and the nature of the respondents in terms of gender and year level ensured that a representative sample of the student population at

this regional university was included, with the mixed methods approach assisting by providing both breadth and depth of information. There was some potential for student response bias with the principal researcher being also involved in student teaching. However, this bias was thought to be minimal as the students stood to benefit from the study. Survey and interview questions were also carefully worded to ensure that researcher bias was minimized.

5.6 Conclusions

This study has explored the roles and ideal attributes of pharmacist preceptors from the viewpoint of pharmacy students. With students being the predominant beneficiaries of the efforts of preceptors, their perceptions of roles and attributes to inform preceptor training are important for the optimal development of training programs. While clinical knowledge is an essential attribute for all preceptors, students perceived that good communication and an interest and desire to teach were more important overarching skills to possess to achieve preceptor excellence. Preceptor training that has a focus on building good preceptor–student relationships will assist in meeting the challenges of developing competent and independent pharmacy graduates in the future.

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Chapter 6 Needs analysis – Academic Staff

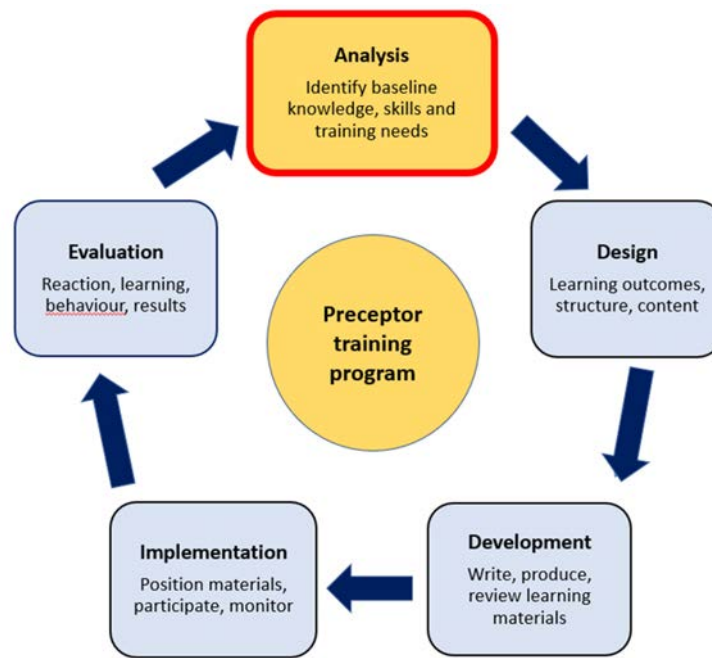
This chapter forms the third part of the preceptor training needs analysis where the perceptions of academic staff on preceptor ideal roles, skills, attributes and training requirements were investigated. Both academic staff and preceptors have a common purpose in educating pharmacy students, but each bring a different perspective to experiential placements. The views of both groups are important to ensure a smooth transition from university to the practice. This chapter is presented in the form of a brief report and has been published in *Pharmacy Education*.

Knott G, Mylrea M, Glass B. Perceptions of academic staff of pharmacist preceptor roles, skills, attributes, and training requirements: a qualitative report. *Pharm Educ.* 2023; 23 (1), 554-559. doi: 10.46542/pe.2023.231.554559

Authors' contributions

Gillian Knott conducted the research and prepared the manuscript. Beverley Glass and Martina Mylrea supervised the research and reviewed the manuscript prior to submission.

Permission obtained from Pharmacy Education for the inclusion of this published journal article



ADDIE Model of Instructional Design

6.1 Abstract

Objective.

To investigate the perceptions of academic staff at a regional Australian university of the role and ideal skills and attributes of pharmacist preceptors and requirements for their training.

Methods.

Nine semi-structured interviews were conducted using a purposive sample of academic staff. Opinions were sought on preceptor roles, skills and attributes, and training requirements. Interviews were transcribed verbatim and thematically analysed.

Results.

Academic staff perceived the need for training to be based on preceptor core competencies and individual preceptor needs, to be delivered online in a flexible format. Training content was recommended to include an overview of the pharmacy curriculum and university expectations, clinical teaching strategies, managing students and providing feedback. Mandatory training was recommended to facilitate communication and promote consistency of the placement experience.

Conclusion.

Academic staff have highlighted that flexible, competency-based preceptor training, tailored to the individual preceptor will deliver on the university expectations to optimise pharmacy students' experiential learning.

Keywords: academic staff, preceptor attributes, preceptor development, preceptor roles, experiential learning

6.2 Introduction

Experiential learning is an important element of the current integrative approach to training pharmacy students across the globe, which aims to produce competent and work-ready pharmacy graduates.^{1,2} (Brownfield *et al.*, 2021; Wilbur *et al.*, 2018,) The integrative approach to the pharmacy curriculum highlights the relationship between academic staff (or faculty educators) and pharmacy preceptors, who play a key role in experiential learning. Academic institutions are primarily responsible for ensuring that when teaching and developing students, both parties work together as a coordinated team with common goals and expectations and that preceptors are appropriately trained for their role.^{1,2} (Brownfield *et al.*, 2021; Williams *et al.*, 2021) A 2020 study found that across the United States (US), preceptor training and development programs varied significantly between institutions and did not always meet the required accreditation standards.^{3,4} (Accreditation Council for Pharmacy Education (ACPE), 2016; O'Sullivan *et al.*, 2020) Consequently, there has been a recent focus on competency standards for preceptors⁵⁻⁷ (Bartlett *et al.*, 2020; Zeitoun *et al.*, 2020; Walter *et al.*, 2018) and a move towards a more collaborative and structured approach to preceptor training and development.^{1,8} (Brownfield *et al.*, 2021; Mulherin *et al.*, 2018)

Unlike academic staff, who can focus on their teaching, preceptors are challenged to balance the often significant workload of their clinical practice with their precepting role.^{4,9,10} (O'Sullivan *et al.*, 2020; Ramani & Leinster, 2008; Williams *et al.*, 2021) Due to the range of experiential placement sites, preceptor roles and responsibilities can also be diverse.¹¹ (Enderby *et al.*, 2021) Considering the increasing need for collaboration between the university and the workplace, the aim of this study was to ascertain the opinions of James Cook University (JCU) academic staff on pharmacist preceptor roles, skills and attributes and their training requirements. With no documented training program currently available to Australian universities for preceptors of pharmacy students, this study aims to inform the development of a training program for JCU pharmacist preceptors.

6.3 Methods

Students enrolled in the JCU BPharm (Hons) program spend 600 hours in the practice during their degree, under the supervision of voluntary pharmacist preceptors, who are coordinated by an administrative placements team and supported by JCU pharmacy academic staff.

This study consisted of a series of nine semi-structured interviews with JCU pharmacy academic staff, chosen using purposive sampling to ensure a broad range of academic staff. Staff were invited

by email to participate in an interview, where their opinions were gathered on the important roles, skills and attributes of the pharmacist preceptor and their training requirements, including format and content of a training program and suggested support measures. Informed consent was obtained from participants prior to interviews.

Interviews were recorded, transcribed verbatim and thematically analysed using the method outlined by Braun and Clarke.¹² (Braun & Clarke, 2006) Interview data were initially coded under three broad categories of preceptor roles, skills and attributes, preceptor training and support requirements and barriers and enablers to training. Within these areas, data were reviewed, refined and grouped into themes, then discussed in the manuscript along with illustrative quotes. Ethics approval to conduct the interviews was obtained from the JCU Human Ethics Committee (H8276).

6.4 Results

Interviewees included three tenured pharmacy staff, four pharmacy adjunct staff and two pharmacy tutors, with the average length of interview being 18 minutes. All interviewees were registered pharmacists, with five having experience as a preceptor and two adjunct staff currently also in a precepting role.

As educators, participants agreed on the major role of the preceptor in linking theory and practice, with Table 6.1 presenting identified themes, with illustrative quotes, on preceptor roles as an educator, role model, mentor and assessor¹³ (Condrey, 2015), as well as themes for the ideal skills and attributes of preceptors, highlighting the importance of good communication, good feedback, good knowledge and experience, and adaptability.

Table 6.1. Academic staff perceptions on preceptor roles, and ideal skills and attributes

Preceptor roles	
Theme	Quote
Educator	<i>"I think they need to integrate what they learn at university into their field of practice, so they can understand and link the knowledge ..."</i> (Academic Staff 2)
	<i>"... they'd at least need to have a base skill of being able to determine where a pharmacy student is at, and the steps to progress that student along ..."</i> (Academic Staff 1)
Role model	<i>"I think it's primarily to be a good role model, to provide students with an opportunity exactly what a good professional pharmacist should be ... just be over and above the standard ..."</i> (Academic Staff 8)
Mentor	<i>"In my opinion, a preceptor is a person who provides guidance and mentoring but in doing that, they need to have an ability to develop the student..."</i> (Academic Staff 6)
Assessor	<i>"I sometimes get concerned, just from people I've observed, that they might give a bit more positive feedback than perhaps they really thought the student deserved. Just because, they feel confronted by talking to the student about anything that wasn't ideal..."</i> (Academic Staff 4)
Preceptor skills and attributes	
Theme	Quote
Good communication	<i>"... how you communicate with your staff; how you communicate with your patients, and how you communicate with other pharmacist or colleagues, and how you make the interprofessional collaborations as well. So that, those are the things that the students can learn just by observing how the pharmacist is working in that environment."</i> (Academic Staff 7)
Good knowledge and experience	<i>"... Obviously, they need to have a very professional outlook in their role and to have some good clinical experience. So that, they're able to provide both a clinical aspect ... and a general knowledge of what the pharmacy industry is about."</i> (Academic Staff 3)
Adaptable	<i>"I think that they need to be good teachers in the sense of their communication skills, and I think they should be able to...be problem solvers, in regard to being able to work with students, different types of students."</i> (Academic Staff 5)
Provides feedback	<i>"what's the point of them being the preceptor or having the person on placement if you can't provide the feedback. It should be constructive feedback and pointing out maybe what could have been done better if there were any major concerns"</i> (Academic Staff 9)

Several staff members commented that as an educator, preceptors should be able to determine the current level of knowledge and skills of the student and be able to develop the student from that level during their placement. One tenured staff member identified that teaching, assessment, and the

provision of feedback are not necessarily innate skills and that preceptors may require additional tools and strategies to assist them in these roles. Some staff also had concerns about the preceptor role in student assessment, suggesting that competency-based assessment would be most suitable for the practice.

Table 6.2 includes themes with quotes from academic staff on the format and content of training, and preceptor support.

Table 6.2. Academic staff perceptions of training format and content, and preceptor support

Training format and content, and preceptor support	
Theme	Quote
Online flexible format	<i>"...training online would be an effective way given that we have preceptors spread all over the country and all over the state....and an ability to do that in the preceptor's own time may be of benefit as well...."</i> (Academic Staff 4)
Defining university expectations	<i>"Explaining the differences between the different year levels and what the expectations were on students at different levels as well..."</i> (Academic Staff 6)
Managing students	<i>"...if the student is unmotivated to do anything at their placement, then it becomes very difficult for the preceptor... So, some tools or education on how to handle that situation ..."</i> (Academic Staff 6)
Teaching strategies	<i>"... we're not all teachers, ... I might be a great pharmacist, but I might not necessarily be a good teacher. So we need to give the tools for those preceptors to be able to perform that teaching role for our students."</i> (Academic Staff 1) <i>"I think there is quite a skill to being able to deliver feedback effectively... it's a hard thing to teach ..."</i> (Academic Staff 8)
Preceptor Support	<i>"I think it'd be nice if you were a preceptor to be on some sort of regular, let us say, email or some sort of regular communication that sort of said, "These are the things that are happening in universities with students...."</i> (Academic Staff 3) <i>"A certificate of appreciation, that may be good idea, because some pharmacies display, those kind of things in their waiting areas and those patients also acknowledge that. Like, "This pharmacy supports the placements and trains the students"</i> (Academic Staff 7)

Flexible online training was recommended as the most practical option, with proposed program content including setting university expectations for preceptors, dealing with challenging students, conflict management, providing feedback, student assessment and teaching skills. Staff were mostly in favour of compulsory training for preceptors and a common suggestion was to provide continuing professional development (CPD) points to promote attendance at training. Suggestions for preceptor

support included acknowledgment of the preceptor role and regular communication from the university. When considering the enablers and barriers to preceptor training, most pharmacists were perceived as time poor, impacting their capacity to undertake training, where it was felt that the main benefit would be in the standardization of the quality of precepting.

6.5 Discussion

This study sought to explore the opinions of pharmacy academic staff on preceptor training. The ideal roles and attributes of preceptors have been investigated from the perspective of both preceptors and students¹⁴⁻¹⁹ (Chaar *et al.*, 2011, Knott *et al.*, 2022, O'Sullivan *et al.*, 2015, Sonthisombat, 2008, Young *et al.*, 2014) and the study results are aligned with these findings. Identification of preceptor roles and important skills and attributes will assist in the development of appropriate preceptor competencies, which can be used to enhance preceptor development.^{7,17,20} (Vos *et al.*, 2018, Walter *et al.*, 2017, Young *et al.*, 2014)

While academic staff ideally prefer face-to-face contact with preceptors, this was not considered practical, and an online flexible program was recommended. Live training is common in the US⁴ (O'Sullivan *et al.*, 2020), with face-to-face interactions thought to be important in developing meaningful relationships between preceptors, however, live online interactions may be a viable alternative.²⁰ (Vos *et al.*, 2018) The provision of CPD points to incentivize training is common in existing programs, and integrating preceptor competencies within this CPD process is recommended.^{1,21} (Brownfield *et al.*, 2021; Knott *et al.*, 2020)

Academic staff recognized the need for preceptors to understand the university curriculum and expectations. A 2021 study of preceptor needs found similarly that an orientation to the curriculum and learner expectations was important, noting also that this was a specific ACPE requirement.¹⁰ (Williams *et al.*, 2021) Also mentioned was the management of challenging or poorly performing students. Managing conflict is a well cited area of concern for preceptors and a recommended preceptor development topic.^{22,23} (Kendrick *et al.*, 2021; Phillips *et al.*, 2014) Staff identified the lack of preceptor training and experience in teaching, with the literature supporting the need for preceptors to have a knowledge of teaching strategies to motivate and develop students and effectively deliver feedback.^{10,15} (O'Sullivan *et al.*, 2015; Williams *et al.*, 2021) The lack of clarity around the preceptor role in assessment and concerns regarding variability in preceptor evaluations were highlighted in this study, with staff recommending that preceptors undertake performance-based rather than knowledge-based student assessment. Entrustable Professional Activities (EPAs)

for pharmacy students are considered an effective tool for preceptor evaluation of practice-based activities, to promote the development of independent practice.² (Wilbur *et al.*, 2018)

Academic staff have advocated the importance of regular university communication and collaboration with preceptors. A culture of inclusion is essential, and preceptors should be recognized and valued for their contribution to the curriculum.^{10,24,25} (Fejzic *et al.*, 2013; Williams *et al.*, 2021; Whalen *et al.*, 2017)

Insufficient time is a well-known barrier to training^{10,26} (Danielson *et al.*, 2015; Williams *et al.*, 2021), however, staff also recognized the importance of quality and consistency of precepting and thus the requirement for compulsory training. The literature suggests that as additional quality assurance, students be encouraged to confidentially evaluate preceptor performance to ensure that educational goals are met.^{1,26} (Brownfield *et al.*, 2021; Danielson *et al.*, 2015)

While limited by sample size and being a single university study, where the findings may not be reflective of the broader community of academic staff, this study presents a valuable in-depth insight from academic staff into pharmacist preceptor training requirements. Although this article presents only the perspectives of academic staff to inform the creation of a training program for preceptors, which may be seen as a limitation, other key stakeholder perspectives and particularly preceptors have been extensively consulted in the design of the preceptor training program.^{18,19} (Knott *et al.*, 2022a; Knott *et al.*, 2022b)

6.6 Conclusion

This study has highlighted key requirements for a preceptor training program from the perspective of academic staff. Teaching strategies, management of difficult students, providing feedback and an understanding of university expectations were considered important areas for training. Engagement and collaboration between academic staff and preceptors will ensure that preceptors feel appreciated and supported, and this will result in training that appropriately addresses preceptor needs and promotes an enhanced student placement experience.

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Chapter 7 Addressing challenging areas of clinical teaching

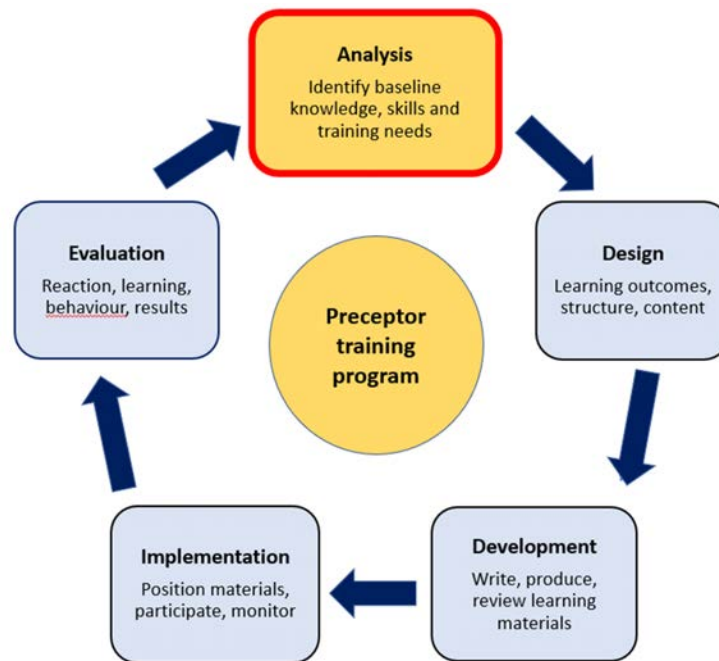
This chapter is a commentary which is based on the integration of the needs analysis of the preceptors, students, and staff. This process has highlighted some of the challenges of clinical teaching and these are addressed in this article. The preceptor's role as an educator and in assessing students and providing feedback are discussed and this will further inform the design and content of the preceptor training program. This article has been published in *International Journal of Pharmacy Practice*.

Knott G, Mylrea M, Glass B. Pharmacy preceptor training: addressing the challenges of clinical supervision in community practice. *Int J Pharm Pract.* riad050. doi.org/10.1093/ijpp/riad050 July 2023.

Authors' contributions

Gillian Knott conducted the research and prepared the manuscript. Beverley Glass and Martina Mylrea supervised the research and reviewed the manuscript prior to submission.

Permission obtained from International Journal of Pharmacy Practice for the inclusion of this published journal article



ADDIE Model for Instructional Design

7.1 Abstract

Pharmacist preceptors are fundamental to experiential placements and their training is considered essential to provide a quality and consistent student placement experience. To optimize the impact of training, the views of key stakeholders are required to inform the design of a training program. This commentary aims to synthesize the perceptions of the stakeholders, including community pharmacy preceptors, academic staff and students on preceptor training requirements. Their opinions were sought to gain an understanding of preceptor roles and associated skills and attributes, training and support requirements, and barriers and enablers to training. Responses indicated a preference for a flexible online training program, with content including an overview of the university curriculum and expectations, teaching strategies, how to provide feedback and student management. A role was identified for the university to acknowledge the work of preceptors and ensure that they are included in their plans for future experiential placement activities and curriculum development. Several barriers were identified, which challenged precepting, providing the opportunity for this commentary to focus on preceptor training that will address these key challenges, in the context of a clinical teaching environment.

Keywords: Preceptor development; pharmacist; preceptor roles; preceptor attributes, clinical supervision

7.2 COMMENTARY

Pharmacist preceptors play an important role in pharmacy student education.¹ A preceptor may be defined as a practising pharmacist who guides and supervises a pharmacy student, pre-registration trainee, or resident in the practice environment, and contributes to the development of their professional knowledge, attitudes and practice.² Experiential placement is now a significant component of university degree programs across the globe, and the training and development of preceptors is considered essential to ensure that the quality of pharmacy student education meets the required standards.^{2,3}

With a focus now on design, development and delivery of preceptor development programs, the lack of in-depth guidance available for such programs has been recognized.³ Guidelines should consider the requirements of the professional and accrediting bodies, be underpinned by available competency standards for pharmacist preceptors, and consider the roles and responsibilities of the preceptor.^{1,3} Although preceptor roles can be quite diverse, their overarching role is in linking theory to practice, according to four core roles: role model, educator, mentor and assessor.⁴ The ideal skills and attributes of a pharmacist preceptor include serving as a professional role model, being an effective communicator and counsellor, being interested and enthusiastic about precepting and giving good direction and feedback.⁵ Identification of primary preceptor roles as well as ideal skills and attributes is important to define core competencies and to inform the optimal content for a preceptor training program.⁴

The increasing diversity of both preceptors and placement sites has also promoted the development of tailored programs, designed to accommodate the individual university or institution⁶ and considering the requirements of all key stakeholders, including the preceptors, pharmacy students and academic staff.^{6,7} This commentary will provide a synthesis of the results of three studies in a single university, involving pharmacist preceptors, pharmacy students and pharmacy academic staff respectively, which together comprehensively explores the perceptions of these key stakeholders on training and support requirements for preceptors. Following an examination of the results, attention will then focus on how training can address the barriers challenging preceptors, particularly related to the issue of clinical teaching and assessment in community practice.

James Cook University (JCU) has been educating pharmacy students in regional Australia for the past 24 years. The University's mandate back in 1999 was to provide a workforce for north Queensland with their experiential placements program commencing in 2001, playing its part in contributing work ready graduates for the region. Community pharmacy preceptors, pharmacy academic staff and pharmacy students, expressed their opinions on the need for preceptor training via a preceptor

survey (n = 55) and interviews (n = 10),⁴ a student survey (n = 37) and focus groups (n = 3),⁸ and individual interviews with academic staff (n = 9). The roles and ideal skills and attributes of the preceptor were investigated from all stakeholder perspectives, with preceptors additionally rating their confidence levels across a range of suggested preceptor roles and skills. Preceptors and academic staff also expressed their views on important preceptor training and support requirements, as well as barriers and enablers to training.

All stakeholders agreed overall on both the primary role of preceptors of linking theory to practice and on the most important preceptor qualities. They felt that as a role model, preceptors should set an example for students to follow, which involves being a good communicator, a good leader, competent in their job and acting in a professional manner. A need was recognized for preceptors as educators to focus on providing hands-on experiences to students, being aware of the university curriculum and the current level of knowledge and skill of their student. They should be able to set expectations for students and be adaptable in their teaching to accommodate student needs. As a mentor, they are expected to be enthusiastic about the profession, and to engage with students and encourage motivation. The focus of the preceptor role in assessment was thought to be in assessing behaviour and practical competence. Furthermore, preceptors should be clear about student assessment requirements and be able to give honest and realistic feedback, including negative feedback.

In addition to the generally agreed roles and attributes of preceptors, academic staff identified that as a role model, preceptors should exemplify the skill of critical thinking and problem solving, which is considered a core skill for a health professional.^{5,7} They also recognized the importance of preceptors demonstrating consistency in their student evaluations, with some concerns of preceptor variability and lack of confidence in undertaking student evaluations. Students highlighted the importance of the preceptor providing a safe learning environment, which has been thought to inspire student confidence and promote effective learning.^{5,7}

Common areas for training suggested by both academic staff and preceptors included an overview of the university curriculum, university expectations of preceptors, and teaching skills and strategies. Preceptors were particularly interested in knowing how to deal with difficult student behaviour, while academic staff felt that it was important for preceptors to be able to deliver effective feedback. It was noted that in both areas, preceptor confidence levels were relatively low. Thus, a need for training was confirmed in student feedback and conflict management, with these also being common training topics requested by preceptors in the literature.^{3,6}

There was unanimous agreement that a flexible online approach to training was required, in consideration of the already busy workload of community pharmacists, with, if feasible, an

additional interactive session to engage and share ideas. In terms of support, preceptors would like to be formally acknowledged for their contribution to the program and more involved in university activities, while academic staff were keen to maintain regular communication with preceptors. These measures to increase engagement and collaboration with preceptors are thought to strengthen the important relationship between preceptors and the university.³ There were also some areas of difference between preceptor and student opinions of important preceptor skills or attributes as shown in Table 7.1.

Table 7.1: Preceptor skills and attributes – percentage difference in participant ratings of VERY IMPORTANT

Important preceptor skill or attribute	Student % Very Important	Preceptor % Very Important	Percentage difference
Effective teacher: facilitates learning	66%	31%	35%
Unbiased student assessor	66%	44%	22%
Effective student engagement	76%	60%	16%
Enthusiastic about precepting and supportive of the student	84%	69%	15%
Effective communication and counselling	89%	78%	11%
Provides constructive feedback	68%	60%	8%
Knowledgeable in their field	66%	60%	6%

Overall, students were more positive than preceptors, however, notably, students rated the importance of a preceptor having effective teaching skills and being an unbiased assessor as appreciably higher than preceptors. A study of student and preceptor perceptions of preceptor teaching behaviours found that preceptors tended to overestimate the quality of their teaching performance, particularly in the areas of evaluation and providing feedback. Furthermore, it was found that preceptors would generally spend more time imparting clinical facts and less time focusing on understanding the learning style of their student.⁹ With the focus of experiential placement being on student education and development, this observation indicates a need for preceptors to reflect on their skills in both teaching and assessment, and for appropriate training to be provided.

The requirement for compulsory attendance at training was also a divisive issue, with academic staff consistently agreeing with the need for mandatory training, while preceptors were less convinced. For preceptors, this perception was again related to time and workload, while academic staff

highlighted the benefits of training to maintain consistency of precepting and the overall student placement experience.

The difference in the importance attached to teaching skills and appropriate assessment by students compared to preceptors (Table 1) draws attention to evidence of conflicting perceptions amongst students and preceptors. The fact that students in the JCU study rated the importance of preceptor teaching skills as higher than preceptors suggests that preceptors may not have a good understanding of their role as a clinical supervisor. Clinical supervision requires preceptors to not only manage students during experiential placement, but also to educate and support them. The current focus on student-centred learning and competency-based assessment in education has added to the complexity of clinical supervision.¹⁰ It should be recognized that while preceptors may be knowledgeable in their field, they do not necessarily have an understanding of the responsibilities of supervised practice and may not innately possess the knowledge and understanding of fundamental pedagogical practices.^{6,10}

In order to address the lack of educational skills and knowledge in preceptors, the provision of training, particularly in the areas of teaching and assessment, can assist preceptors to become a more effective clinical supervisor. As an essential first step to good clinical supervision, it is important for preceptors to understand their roles and responsibilities and be trained in the principles of clinical teaching.¹⁰ Table 2 contains a list of recommended areas for preceptor training to improve their clinical supervisory skills, explaining why and providing strategies to promote improvement.

Table 7.2: Preceptor areas for training with reasons for inclusion and examples^{10, 11, 13}

Training area	Reasons for training (example)
Good organization with flexibility	To improve supervisor efficiency (have a precepting plan, provide a student orientation, allocation of protected time with the student)
Understanding of preceptor roles and responsibilities	To provide clarity and identify roles (Preceptors need to understand that the purpose of precepting is not simply to impart knowledge but to facilitate learning)
Training in pedagogical practices	To enhance teaching skills and optimize teaching effectiveness. (Clinical teaching, adult learning principles, deep and surface learning)
Understanding different teaching and learning styles	To allow preceptors to adapt their teaching style to suit the needs of the individual student (consideration of student level, learning style, background and expectations)
Time efficient teaching	To improve time management (One Minute Preceptor [Ramani 2008])
Assessment and feedback	Promotes student learning and skills development (Miller's pyramid of clinical competence, appropriate assessment methods, criteria for effective feedback, constructive feedback delivery methods e.g., Pendleton's feedback model)
Reflection on feedback	To learn from past experiences – essential for both students and preceptors (Reflection on past performance, correction of errors to improve future performance)

The role of clinical supervisor is a complex one and preceptors need to balance their responsibilities towards their patients with their obligations to the student.^{6,11} This is of particular concern to community pharmacy preceptors, where demands on preceptor time are considerable and workload can be highly variable.¹² The ability to integrate precepting into everyday practice is a key skill for preceptors and this requires a good knowledge of effective teaching strategies, as well as time management skills.¹⁰ The JCU studies have also highlighted the lack of clarity around the role of the pharmacist in assessment and concerns about variability in preceptor evaluations of students, with academic staff indicating a tendency for preceptors to be overly generous in their student evaluations.^{4,8} This is consistent with the literature, where preceptors have reported difficulties in providing consistent student evaluations due to issues such as variation in placement sites, different levels of students, short placement periods and lack of training.^{4,6} Other studies report that preceptors may feel unqualified to assess a student and often uncomfortable when providing negative feedback due to the potential for tension in the practice.¹² The literature also identified that with short placements, it was often felt that the assessment requirements of preceptors were unrealistic in the practice environment.^{11,12} This highlights the importance of appropriate design of assessment for the experiential learning environment, which should focus on the assessment of

clinical competence. The use of authentic assessment tasks such as entrustable professional activities, which are well established in the United States, are ideal for the community practice and while in Australia, they have been recommended for assessment of intern pharmacists only, they could potentially be extended to include experiential placement.

Feedback on student assessment is known to be essential for improved future performance¹¹, so it is concerning that preceptor confidence levels in the JCU studies were relatively low for the provision of feedback. The difficulties experienced by preceptors with assessment and feedback may be addressed by training, firstly through the understanding of the purpose and process of assessment in the clinical environment and then to consider the most appropriate ways of providing student feedback. Training in the theory and practice of assessment may improve preceptor confidence and as a result, address the issue of preceptor bias.^{11,12} The creation of a safe and positive learning environment is critical for student experiential learning, where errors are accepted and acknowledged, and feedback is a normal part of this process.¹¹ A safe learning environment will promote student self-motivation and lead to better student learning and performance. Orsini in 2015 conducted a review of intrinsic motivation in the clinical teaching environment and identified teaching behaviors that can support student autonomy in the clinical setting.¹³ Figure 7.1 illustrates the process by which appropriate training will lead to improved preceptor confidence and better student learning.

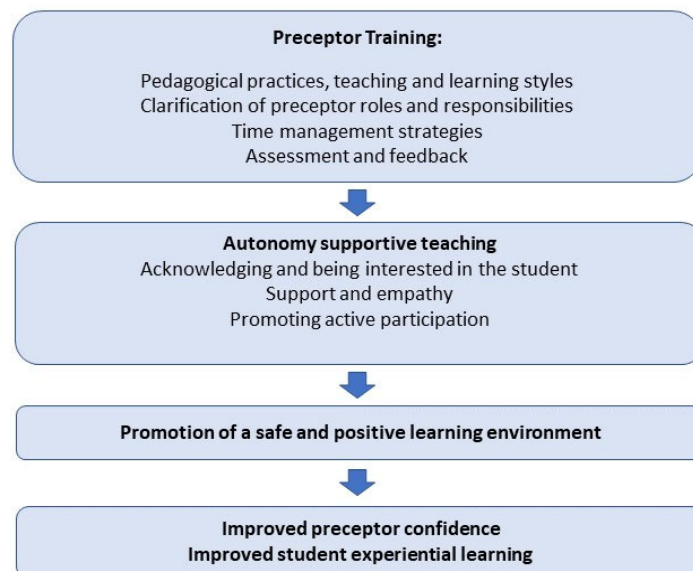


Figure 7.1: Preceptor training process to enhance student learning in practice (Adapted from ¹³)

Stakeholder perceptions are key to focusing on areas of concern for preceptors, so that training programs can be tailored to address the challenges of clinical supervision and provide quality training for pharmacist preceptors in community practice.

A limitation to this commentary is that it has drawn on data from a single institution in Australia, which, although supported by global literature, may limit its generalizability.

7.3 Chapter 7 - References

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Chapter 8 Training program design, development, and implementation

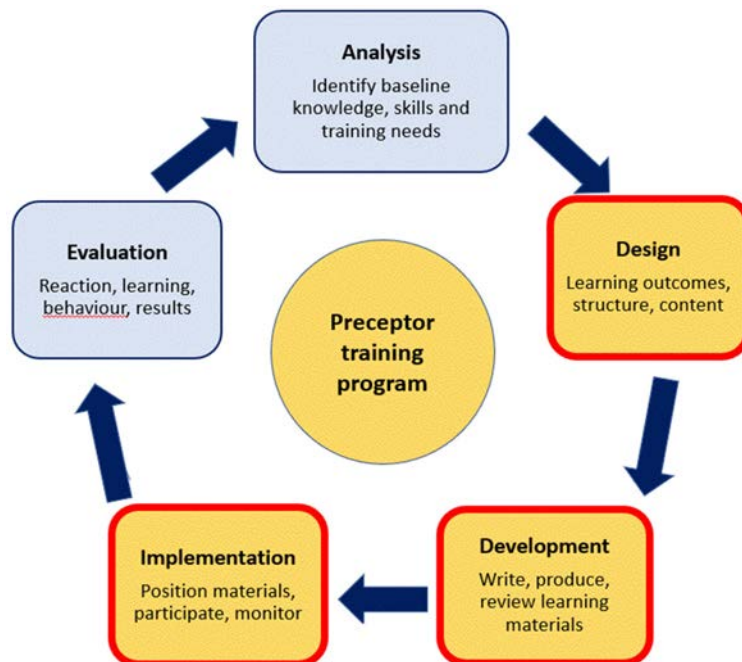
In this chapter, following the scoping review of the literature and the needs analysis, we move on to the design phase of the training program. This chapter summarises the design, development and implementation of the pharmacist preceptor training program. This article has been published in *Pharmacy* in the Special Issue: Advances in Experiential Learning in Pharmacy.

Knott G, Mylrea M, Glass B. How should we prepare our pharmacist preceptors? Design, development, and implementation of a training program in a regional Australian university. *Pharmacy* 2023; 11(5): 148. doi: 10.3390/pharmacy11050148

Authors' contributions

Gillian Knott conducted the research and prepared the manuscript. Beverley Glass and Martina Mylrea supervised the research and reviewed the manuscript prior to submission.

Permission obtained from Pharmacy for the inclusion of this published journal article.



ADDIE Model for Instructional Design

8.1 Abstract

Increased experiential learning within pharmacy education has highlighted the need for quality preceptors, leading to a recent focus on their development and training. This study describes the design, development and implementation of a pharmacist preceptor training program in a regional Australian University. The design of this program utilized the results of a previously conducted scoping review of preceptor training programs and a comprehensive preceptor training needs analysis. In addition, participation was sought from an expert advisory group, comprising preceptors and pharmacy professional organizations. Program materials were developed and transferred onto a suitable online learning platform for implementation. Post-training program evaluation will follow Kirkpatrick's model of training evaluation criteria, gaining feedback from both preceptors and students. The four flexible online modules that were designed are aligned with the main preceptor roles: role model, educator, mentor and assessor. The program also included a small-group online interactive networking session and an online discussion forum. Following implementation, 28 pharmacist preceptors completed the training. Preliminary feedback on the training program was extremely positive, particularly to the interactive networking activity. Future programs will continue to be adapted to reflect stakeholder feedback and optimize student placement experiences.

Keywords: experiential education; preceptor role; preceptor support; educator; mentor; assessor; participatory approach

8.2 Introduction

Preceptors play a vital role in pharmacy education by teaching and mentoring student and intern pharmacists in practice settings as they develop their professional knowledge and skills. Globally, the focus on experiential learning within pharmacy education has highlighted the increasing role of pharmacist preceptors and the need for preceptor training and development to ensure the provision of quality teaching. Training and support for pharmacist preceptors is thus regarded as essential and considered to be the professional responsibility of the university. The Australian Pharmacy Council (APC) Accreditation Standards for Pharmacy Programs require all professionals who are involved in assessing students or interns to be 'suitably qualified, experienced and prepared for the role, and 'provided with appropriate guidance and support'.¹ In the United States (US), the Accreditation Council for Pharmacy Education (ACPE) Standards require that the college or school promotes the professional development of preceptors in line with their educational responsibilities.² There remains, however, a lack of in-depth guidance to inform the design, delivery and ideal content of professional development programs for preceptors.¹⁻⁵

Two global reviews of preceptor training programs revealed limited documented examples of training programs and a wide variation in the design, delivery and content of these programs.^{6,7} Similarly, a study investigating preceptor orientation and development programs across various institutions in the United States found significant variation, with not all programs meeting the minimum expectations for preceptor orientation as outlined by the ACPE.²⁻⁴ Preceptors supervise students in both hospital and community pharmacy, but also across a range of other less common or more specialized placement sites, such as general practitioner (GP) practices, specialist hospital clinics, industry and professional organizations. It is therefore not surprising that preceptor roles and responsibilities vary widely, which in part explains the diversity of training programs available.⁸ While it is recognized that programs should preferably be tailored to suit the individual school or institution, it is also thought to be important that there is some standardization of key program elements such as preceptor orientation and student assessment and evaluation. Programs should be structured and evidence-based, but also provide flexibility for preceptors, who as clinical teachers, practice in a busy and often complex working environment.^{4,6,8} The majority of preceptors are not remunerated for this role⁴ which provides a further challenge to undertaking training.

Recent interest has focused on preceptor competencies to provide an underpinning structural framework for preceptor development, promoting consistency of preceptor performance and potentially enhancing the student learning experience. Preceptor competencies are closely associated with a range of ideal preceptor roles, skills and attributes, with their identification being

necessary to inform the development of competency standards. Several studies have investigated the ideal skills and attributes of pharmacist preceptors from the perspective of both preceptors and students,⁹⁻¹³ with professional competency frameworks for pharmacists or other health professional preceptors under consideration in many countries.¹⁴⁻¹⁶

In addition to competency standards and adherence to the requirements of professional accreditation bodies, the design of a training program for preceptors needs to consider available resources, the nature of the precepting environment, the background knowledge of the preceptor, their specific roles and responsibilities and their individual training needs.^{5,7,17} With this in mind, the aim of this study was to design, develop and implement a pharmacist preceptor training program, tailored to meet the needs of community pharmacist preceptors at James Cook University (JCU).

8.3 Materials and Methods

8.3.1 Study Setting - James Cook University (BPharm [Hons])

Experiential learning provides the opportunity for students to link learned theory to the realities of pharmacy practice and is considered to be an integral component of the JCU curriculum, with students undertaking 600 h of placement during their degree, under the supervision of a pharmacist preceptor. JCU is a regional university with a focus on rural and remote practice; therefore, preceptors and placement sites are geographically distributed across the state of Queensland, covering an area of approximately 80,000 square kilometres. Placement blocks vary in length, ranging from two to six weeks, with all students required to attend at least one rural placement. This training program was designed to prepare pharmacists for their role as student preceptors, with a particular focus on community pharmacy preceptors, who represent about 70% of JCU's cohort of volunteer preceptors.

8.3.2 Instructional Design Model

The 5-point ADDIE (Analysis, Design, Development, Implementation, Evaluation) instructional design model (Figure 8.1), which has been found to be particularly relevant for online and distance education,¹⁸ was used to inform the overall design of the training program. This model consists of five phases: Analysis, Design, Development, Implementation and Evaluation. In the analysis phase, the baseline knowledge and skills of the learner (preceptors) and their training needs are identified. This information is then used in the design phase to create learning outcomes, to choose the most

effective and convenient learning tools and appropriate program content, and to decide upon the best learning platform. The design phase is followed by the development phase, where the learning materials are written, produced and reviewed within the online platform. Once the program has been finalized, it is implemented, with the trainees (preceptors) participating in the program, with regular monitoring and minor adjustments made if needed. The final phase, after participants have completed the program, is to choose an appropriate method of evaluation to ensure that the program has met the learning outcomes and to identify areas for improvement for future programs.

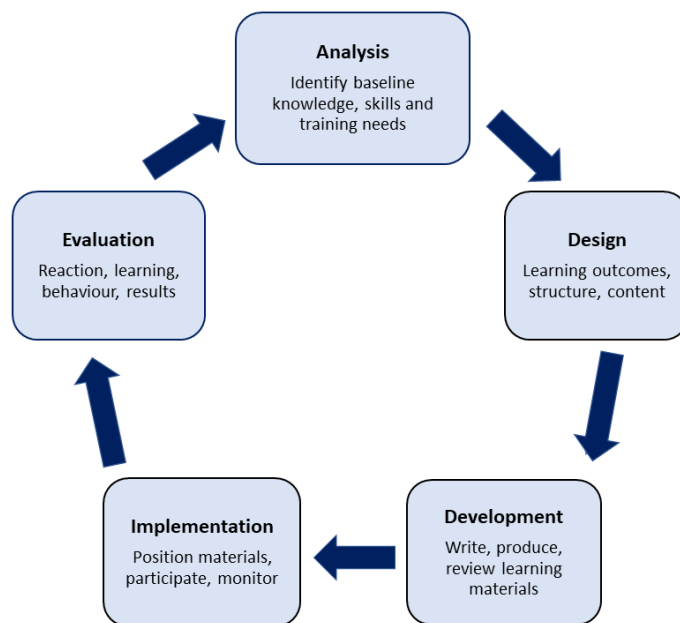


Figure 8.1: ADDIE Model for instructional design. (Adapted from [18])

8.3.3 Analysis and Program Design

A participatory approach was employed to inform the design of this training program, enabling the program to be tailored to those directly involved in experiential teaching and learning. This approach included a needs analysis of preceptors, academic staff and students, using mixed methods and collaboration with an expert advisory group. Figure 8.2 provides an overview of the approach taken to inform the design of the program.

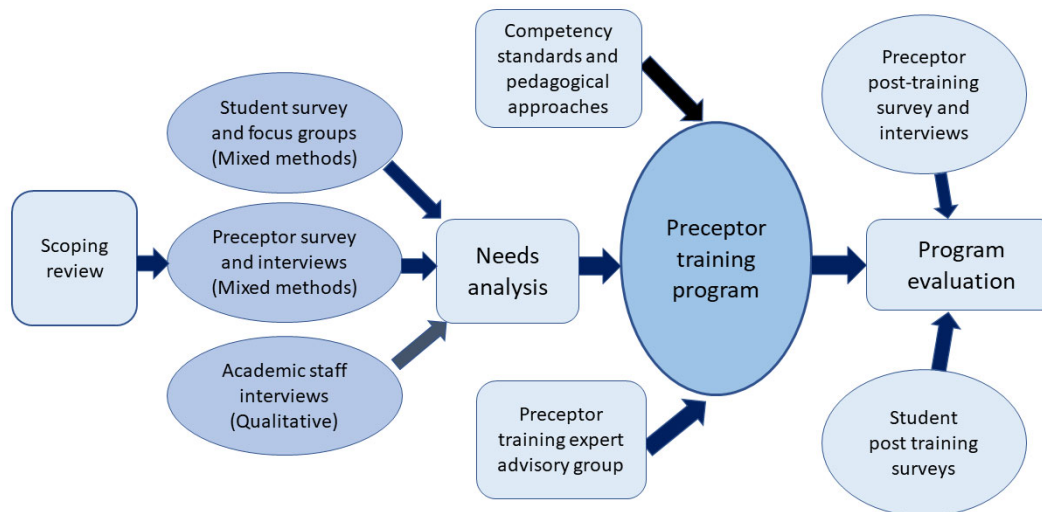


Figure 8.2: Overview of approach to inform the design of a preceptor training program

The needs analysis which informed this program has been reported in previous publications,^{9,10} with this article focusing on the design, development and implementation of the training program. Furthermore, as the program evaluation is in the preliminary stages and therefore not currently completed, evaluation results will not be discussed at this time, being the subject of a future publication.

Following a scoping review of preceptor training,⁶ both qualitative and quantitative methods were employed in an explanatory sequential needs analysis study. The purpose of this study was to identify the roles and associated skills and attributes of the ideal preceptor as well as their training and support requirements from the perspective of all key stakeholders in experiential learning. Preceptors and academic staff were also asked to indicate their preferences regarding structure and content of a training program, and their perceptions on key enablers and barriers to training, which were considered in the program design.^{9,10}

The curriculum framework for this program was based on a preceptor training program developed by Condrey,¹⁹ which outlined four roles of the preceptor: role model, educator, mentor, and assessor. The Pharmaceutical Society of Australia's (PSA) National Competency Standards Framework for Pharmacists²⁰ was examined and linked where relevant to the program content. Appropriate pedagogical approaches for adult learners in the online environment also informed the educational design of the training program.^{2,21-26}

After the preparation of a draft curriculum for training, the research team established an expert advisory group to provide oversight, especially in relation to the practice, and to contribute to the program design. Group members were chosen by purposive sampling and invited to participate in two online meetings, one prior to program development and one following the completion of the training program by preceptors. The advisory group included the three members of the research team (the authors), two members from key professional pharmacy bodies (PSA and APC) and two preceptor representatives, from both a rural and an urban JCU placement site. The research team are all academic staff members in pharmacy at JCU, with the principal researcher (GK) being an experienced pharmacist and academic, BG being a pharmacist with extensive academic and research experience and MM having a degree in education as well as significant academic experience. To minimize the risk of bias in the program evaluation, the two preceptors involved in the expert advisory group did not participate in the preceptor training program. Advisory group meetings were recorded and minutes were taken, which allowed the researchers to fully examine member comments and suggestions for program improvements.

Overall, advisory group members were complimentary of the proposed training program, in terms of both structure and content. Various issues were discussed, including student motivation, the challenges of providing feedback, preceptor competencies and linking preceptor training to career progression. Additional content topics suggested by group members included leadership and teamwork, an expansion of cultural considerations, reflective practice and different student learning styles. Based on feedback from group members, the preliminary draft of the training program was modified and further developed into its final form. A second advisory group meeting was held following completion of the program to report on the program implementation and to discuss any future improvements to the program.

8.3.4 Program Development and Implementation

The program materials were developed by the principal author and reviewed by the research team. A suitable platform for delivery was selected and prepared and program materials were built as modules within this learning platform. Program implementation was timed to coincide with the schedule of student placements, allowing preceptors to complete the full program prior to hosting their next student. A certificate of completion was provided to all preceptors who completed the program.

8.3.5 Program Evaluation

For quality assurance, the program will be evaluated, guided by Kirkpatrick's framework model for evaluation of educational effectiveness, which consists of four levels of evaluation: reaction, learning, behaviour and results. The reaction level measures the trainee's perception of training, i.e., did the learner (the preceptor) enjoy the training. The learning level is a measure of the degree of learning achieved by the trainee, based on the learning outcomes. i.e., was the program informative to preceptors. The behaviour and results section are more difficult to measure and involve ascertaining the effect of the program on work habits and performance outcomes, i.e., did it improve precepting ability and confidence and lead to improved student learning.²⁷

This evaluation will involve a preceptor self-completion survey immediately following completion of the program, as well as preceptor post-training interviews, conducted shortly after a student has completed a placement in their community pharmacy. The preceptor post-training survey will address the reaction and learning levels of Kirkpatrick's evaluation of educational effectiveness model. The post-training interviews will seek to identify any self-reported changes to precepting behaviour resulting from the training, thus addressing level 3 of Kirkpatrick's model. To provide a balanced perspective, the program will also be evaluated from the viewpoint of the student by making use of the standard *Student evaluation of the preceptor* survey which is routinely conducted by JCU Pharmacy following each student placement. Student post-training surveys for trained preceptors will be compared to untrained preceptors, to identify any changes to precepting behaviour because of training, thus adding to the accuracy of the level 3 evaluation.

8.4 Results

8.4.1 Analysis and Program Design

The scoping review identified a range of preceptor training programs, for both hospital and community preceptors as well as residency preceptors. Modes of delivery of training included face-to-face classes and web-based modules, supplemented by a preceptor manual, assignments and recommended readings. While online training was convenient and often considered a necessity due to the geographic distribution of preceptors, face-to-face training was thought to better facilitate preceptor networking. Program flexibility was important to preceptors due to time and workload constraints. Areas of interest for training content included teaching skills, how to be a good role model, conducting assessment and the provision of student feedback. Various useful support

measures were identified, including regular communication with preceptors, recognition of the work of preceptors and the provision of continuing professional development (CPD) credits for participation in training. Training program evaluations were mostly positive and based on post-training qualitative feedback from preceptors, although some programs conducted pre and post preceptor surveys or interviews, with only a small number of programs obtaining student feedback.⁶ The preceptor training needs analysis reinforced the benefits of preceptor training and made recommendations that all preceptors undertake training. It was agreed that preceptors play many roles, with their key role being to link theory to practice. Important preceptor qualities include good communication and counselling skills, being a good role model, interest and enthusiasm about precepting and providing effective, and timely and constructive feedback. It was felt that training should be predominantly provided online with flexibility of training a key requirement. In addition to the online component, some form of interactive session was desirable, as well as a supplemental preceptor manual (which JCU already provides).

Training program content should include an overview of the university curriculum, preceptor and student expectations, teaching tips and strategies, conflict management and how to provide feedback. As support for preceptors, the university should communicate regularly and involve preceptors in current and future curriculum development. The most significant barrier to preceptor training was time, although lack of training and the voluntary nature of precepting were also considerations when choosing to become a preceptor. The main benefit of training was the delivery of a consistent approach to precepting, which was thought to lead to an improved student placement experience.^{9,10}

The decision to conduct an online program was influenced by practicality, with the geographic distribution of preceptors as well as time pressures being a major impediment to simultaneous face-to-face training. While face-to-face programs are relatively common in the United States and are often preferred due to their interactive nature, they can be a challenge in circumstances where there are limited resources and poor preceptor accessibility.^{5,17} This approach was considered not to be feasible in the JCU context, and a blended online format was chosen, which included both online modules and an online interactive component. The program that was developed consists of four online modules, in addition to a small-group interactive preceptor networking session and an online discussion forum. Figure 8.3 provides an overview of the four modules, with an outline of the final program available in Supplementary File 8.1 (Table S1). The chosen instructional design offers the required flexibility for preceptors as well as addressing the desire for interaction, as identified in the needs analysis.

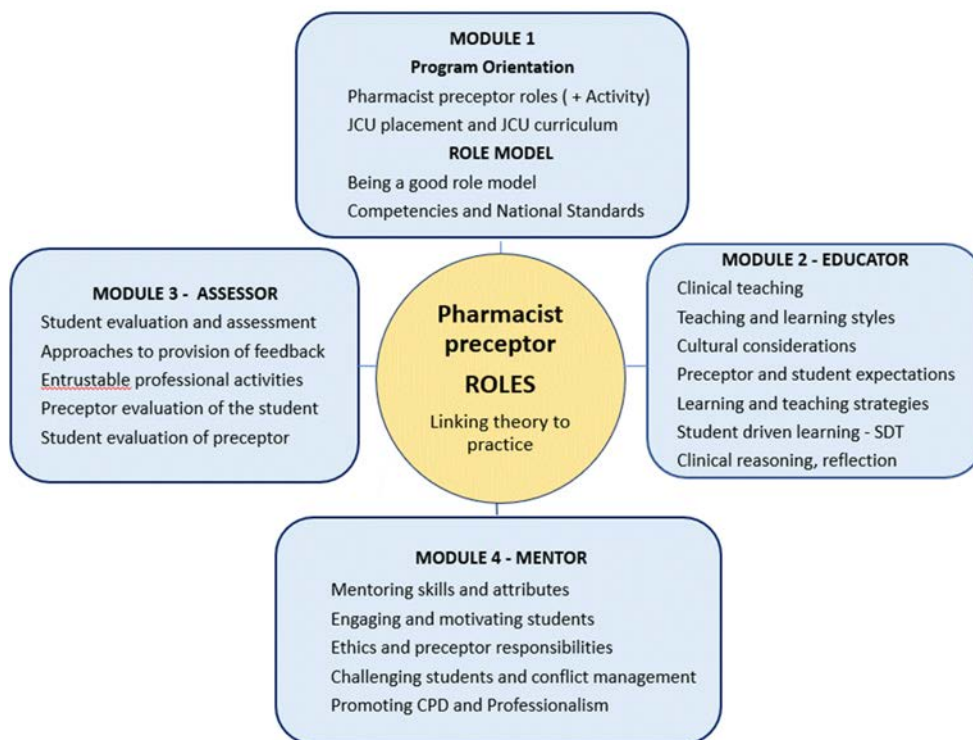


Figure 8.3: Overview of online modules for preceptor training program

The individual modules contain instructional materials which address the four main preceptor roles outlined in the Condrey program: role model, educator, mentor and assessor.¹⁹ Although Condrey's program was designed for registered nurse preceptors, the principles of effective precepting are similar across the health professions.^{14,15} As a health professional, preceptors are an important role model for student to observe and follow. As educators, although much of the theoretical knowledge of students is learned at university, preceptors supplement this knowledge and link theory to practice. Preceptors also provide mentorship to pharmacy students, whereby they guide and support them as they develop their professional skills. In their role as an assessor, preceptors evaluate students and provide essential feedback, which allows students to grow and learn from their placement experiences.^{22,28}

While Condrey's program included an online component for theory-based information and a four-hour face-to-face training class, the JCU program was conducted fully online and therefore these two components were integrated across the four modules. Whereas in Condrey's program, face-to-face training concluded with small group and class discussions of case studies based on the four

preceptor roles, in the JCU model, this session was conducted as a small group online synchronous case-based interactive session, following the completion of the online modules.

The module materials incorporate pedagogical approaches, and teaching and learning theories which are relevant to the experiential learning context. Preceptors are clinical educators who teach students in a practice environment. They are also adult learners; therefore, it was considered that andragogical teaching methods featuring a constructivist approach would be most applicable for preceptor training. The preceptors are introduced to a range of educational theories and concepts, such as deep and surface learning, intrinsic motivation, the VARK learning style classification, Miller's pyramid for clinical teaching and assessment, and the ACPE preceptor teaching methods.^{2,21-23,25} The overall learning outcomes for the modules are provided below:

- To identify and describe the roles of the pharmacist preceptor and their associated skills and attributes.
- To have a knowledge of the skills required to be a student role model and to promote the profession of pharmacy and the importance of lifelong learning.
- To recognize the different teaching and learning styles which may impact on the education of pharmacy students during placement and to be able to implement a variety of teaching strategies.
- To describe the principles of mentoring or coaching to motivate, guide and manage pharmacy students during their placements.
- To understand the principles of student assessment and strategies for the provision of student feedback in the clinical environment.

A welcome message and introductory materials are also included. Each module contains a set of individual learning outcomes, along with information relevant to the preceptor role, online activities, a range of brief supporting video clips, a list of references and a ten-item multiple choice quiz to provide immediate feedback and allow the preceptor to reflect on what they had learnt. The modules are designed to be flexible and able to be completed in the preceptor's own time over a five-week period, with the estimated overall completion time for the modules being six hours. It was felt that for an optimal outcome, preceptors should be advised to complete all modules and their associated quiz prior to attending a 1.5 h online synchronous networking session. The networking session was designed to allow preceptors to interact with other preceptors in a small group, thus encouraging the sharing of information and ideas. A series of six case studies were prepared to promote discussion. Cases were linked back to various aspects of precepting which were covered in the four modules. This included pre-placement preparation, setting expectations, teaching styles, one-minute preceptor, student assessment and conflict management. As examples,

one case provided a student scenario from which preceptors could use the one-minute preceptor framework to provide student education and feedback and one case presented a situation where a student is lacking motivation and behaving in an unprofessional manner, asking preceptors to discuss their response to the situation.

The decision to establish an optional online discussion forum within the organizational site was intended to facilitate further asynchronous communication between preceptors to share ideas and strategies for precepting at their own convenience.

8.4.2 Program Development and Implementation

An organizational site called the JCU Pharmacy Preceptor Training Hub was developed as part of the JCU Blackboard® Learn educational platform, and with the help of a digital support assistant. As the already established educational platform for JCU, this was convenient and was able to be easily accessed at no cost to the preceptors. Program modules were prepared and loaded into this online organization site. An image of the preceptor training organizational site is provided in Supplementary File 8.1 (Figure S1).

Following the preparation of the organizational site, a list of email addresses of current and past preceptors was obtained from the JCU pharmacy placements administrative officer. All 240 current and past preceptors were invited by email to participate in the program, with 62 pharmacist preceptors (25.8%) registering for the program. After completion of the four online modules, seven small-group online networking sessions were conducted with preceptors. A maximum number of nine preceptors per group was set, to ensure that there was ample opportunity for all group members to participate in the discussion. These sessions were facilitated by the main author, with each of the six case studies being presented and discussed among the group members.

Opportunities for general discussion were also provided within the session. Preceptors who had registered for the program were also invited to contribute to the online discussion forum. Several comments were added to the forum by the facilitator to promote conversation.

Of the 62 registrants, 33 preceptors commenced the modules, and 28 preceptors (46.8% of registrants) completed the entire program and were therefore eligible to receive a certificate of completion.

8.4.3 Program Evaluation

Following participation in the program, and completion of all components, including the module quizzes and the preceptor networking session, preceptors were invited to complete a 10-minute post-training online feedback evaluation survey, developed using the Qualtrics® survey platform (Qualtrics, Provo, UT).

As a follow-up to the survey, a sample of preceptors will be invited to participate in a post-training interview, to be conducted shortly after hosting their first post-training placement student. The aim of the interviews will be to ascertain the outcomes of the training program in terms of changes in their knowledge and attitude towards precepting and the impact on their behaviour during the placement. Interviews will be conducted by telephone and audiotaped, with an estimated completion time of 15 to 20 minutes. Program evaluation will also be undertaken from the perspective of the students through the *Student Evaluation of the Preceptor* post-placement survey, which is routinely conducted online via Qualtrics after each placement experience. All student surveys in the year prior to the program and the year following the program will be collected, with a pre and post analysis being conducted to identify any changes to preceptor evaluations following program participation. The results of the post training evaluation survey are in the early stages of analysis, however, preceptors have thus far provided overall positive feedback, particularly regarding the small-group online networking sessions. The post-training evaluation of this preceptor training program will be the subject of a future article.

8.5 Discussion

The goal of this training program is to prepare and support JCU pharmacist preceptors in their role as teachers and mentors of JCU students during experiential placements. The program design was informed by JCU preceptors, students, and academic staff, with additional input from key industry stakeholders. In line with stakeholder requirements, the program provided individualized training via a set of flexible online modules, together with a small group interactive online networking session. Curriculum content was tailored to suit the identified needs of JCU preceptors, and the program was evaluated from the perspective of both preceptors and students. This discussion will follow the five stage ADDIE Model of Instructional Design which guided program development.

A needs analysis is a commonly used method of identifying trainee requirements to develop an effective and evidence-based training program.^{29,30} A range of preceptor needs analyses have informed the design of pharmacist preceptor training programs. Most studies used a single method of investigation, either quantitative surveys or qualitative interviews or focus groups, with many involving the preceptor only and some focusing more on ascertaining the views of faculty, program

coordinators and educational experts, rather than preceptors.^{5,8,17,26,30-32} The needs analysis conducted prior to the development of this program used a mixed methods approach, which provided both breadth and depth of data for analysis. The participatory approach also ensured that those who stood to benefit from this program, including preceptors, students, and academic staff, were consulted to inform the program design, allowing for tailoring of the program to the specific needs of JCU pharmacist preceptors.

Common modes of delivery in recent preceptor development programs have included electronic methods such as on-demand or live webinars, online modules, and face-to-face classes, with many programs choosing a blended delivery approach incorporating online and face-to-face methods.^{4,7,19} This study, like many others, identified the importance of a flexible approach to training delivery, while also acknowledging that preceptors appreciate some form of live interaction with their peers.^{8,26,29,30}

From this study, important preceptor skills and qualities included good communication, being a professional role model, enthusiasm for precepting and being able to provide good feedback. This aligns well with the literature^{12,13} and relevant competency standards.^{14,15} Suggested content areas for training also correspond well with documented pharmacist preceptor training programs and include providing feedback and managing conflict, curriculum structure and requirements, setting learner expectations and teaching strategies.^{4,5,33}

The second phase of the ADDIE model focused on the design of the training program, which considered both the overall structure and the proposed curriculum. It was decided that for this program, an online format was most appropriate due to the wide geographical distribution of preceptors and placement sites. There has been some debate over the most effective way to teach online, with studies finding that while online learning is a valuable tool for teaching clinical skills, a blended approach to learning was preferred.^{4,5,34} The range of potential web-based instructional strategies, e.g., webinars as well as increased internet accessibility and improved reliability have promoted the development of online training. There is evidence that online instructional training may now be as effective as live face-to-face training in promoting participant interaction and engagement.³⁵

The instructional design of this program considered the nature of the learners (the preceptors) who are clinical teachers facilitating student learning and skill development in the practice setting. Clinical teaching can be complex; while practicing in a dynamic working environment, preceptors must not only create a safe learning space for students, but also ensure that they are managing their workload and providing optimal patient care.²² Pharmacist preceptors are also adult learners, with varying degrees of experience in their field of practice and generally a high level of internal motivation and

independence. In this context, andragogical teaching methods featuring a constructivist approach, were felt to be most applicable for preceptor training. The andragogical or adult learning approach, originally formulated by Knowles, focuses more on understanding and the application of prior knowledge and problem solving rather than the learning of content and facts.^{22,25,26} Constructivism postulates that learners construct knowledge by reflecting and building upon their previous knowledge and experience.^{22,24} Using this pedagogical approach, tasks which represent authentic and relevant examples of experiential teaching were designed. These required the preceptors to reflect upon and apply their existing knowledge to critically analyse student scenarios in the precepting setting. It was recognized that methods for effective online learning may differ from conventional learning, with one study finding that video clips were the most useful feature in online learning and online readings were the least useful.³⁴ The principles of andragogy apply to both the preceptor and the pharmacy student, with Kolb's experiential learning theory supporting the focus on the student learner as an active participant in the educational process.^{22,24} Given that this program was designed to teach preceptors how to precept students, an understanding of both learning and teaching strategies needed to be included, with a range of educational theories, tools, and frameworks being introduced or integrated into the program. In the Educator module, preceptors were introduced to the VARK learning style classification, which describes four learning modes for students: visual, aural, read/write and kinaesthetic, reflecting the different ways in which students learn. Research has found that by identifying the preferred learning style of the student and adapting their teaching style to suit the student, learning can be improved.³⁶ It is well known that differences across generations can lead to conflict³⁷ and this module provided preceptors with some insight into the generational divide and how each generation can work together and appreciate their differences. Biggs outlined two types of learning, deep and surface learning. Deep learning is preferred, as it promotes a healthy attitude to learning and increased retention of knowledge. Being able to link theory or content to hands-on activities, which is an essential part of experiential placement, was regarded as a useful skill to encourage deep learning.²³ Motivation is also important for student learning. Self-Determination Theory (SDT) describes the three key needs for human motivation: Autonomy, Competence and Relatedness. SDT was introduced as an underlying concept for preceptors to encourage autonomy supportive teaching. This will promote intrinsic motivation and lead to a deepening of student interest, increased reflection and promotion of critical thinking skills.²¹ The ACPE identify four main preceptor teaching methods: direct instruction, modelling, coaching and facilitating, which may be used by preceptors at various stages of student development to enhance learning and progress their professional skillset.^{2,38} Because preceptors are often time poor, the

introduction of the One-Minute Preceptor clinical teaching tool, which can be implemented for case-based scenarios in the practice, was considered an effective way of improving time efficiency for preceptors.^{22,25,33} In terms of assessment, Miller's Pyramid is a well-known framework for the development of clinical competence and a knowledge and understanding of this framework should assist preceptors in evaluating and assessing their students appropriately.^{22,24}

A range of pharmacist preceptor training programs have been developed in recent years, including small, site-specific programs, university-wide programs and large consortium-based programs.^{4,6,7} They may have been designed for preceptors in general, or specifically for community or hospital pharmacy preceptors, preceptors of students, interns, or residents. In the United States, they may focus on preceptors involved in introductory pharmacy practice experiences (IPPEs) or advanced pharmacy practice experiences (APPEs), or both.^{32,39-42} Very few programs have been developed specifically for community pharmacy preceptors, with most being delivered predominantly face-to-face.^{32,40,43} A web-based preceptor training program was developed across three universities in Australia, consisting of five modules, with Module 1 being introductory and the remaining four modules focusing on the student, the preceptor, precepting challenges and problems, and putting theory into practice.⁴⁴ A program developed in the United States in 2012 through collaboration with two universities included four core 30 min web-based modules, which covered an introduction to the professional experience program, the role of the preceptor, developing your rotation and providing feedback. Additional modules for further preceptor development continued to be added to this program over time.³⁹ A consortium-based program across five United States institutions consisted of five one-hour online modules entitled Professionalism, Structuring the student's experience, Motivating the student in the clinical arena, Achieving synergy in clinical teaching and Assessment and evaluation^{41,45} In the United States in 2004, a multi-university training program was developed for an academy of preceptors, which in addition to live training and a preceptor manual, included a CD-ROM containing 3 modules, with Module 1 outlining preceptor roles and responsibilities, Module 2 focusing on assessment and Module 3 covering the provision of drug and health related information.⁴² An interprofessional program developed in Qatar in 2022 consisted of a 13- hour online program which included five modules: Principles of learning and teaching, Planning for experiential learning, Teaching and instructional strategies, Student assessment and feedback and Communication skills for effective preceptorship and conflict resolution.³⁰ On close examination, it was determined that while the division of content across modules varied between these documented programs, much of the overall content was similar, and aligned well with the JCU program.

One of the most desired requirements for a pharmacist preceptor training program is the provision of continuing professional development (CPD) credits for training. Since preceptors are time poor and frequently contribute in a voluntary capacity, they will often prioritise their time based on potential rewards. CPD credits for training are a feature of many current training programs and the integration of preceptor development tools into professional CPD portfolios may also encourage preceptor participation in training in the future.^{46,47}

Following the development of the course materials and review, the JCU online program was made accessible to participants, with 28 preceptors completing all components of the program. It was thought that this relatively low participation rate was due to the current high workload of community pharmacists in Australia, considering also the impact of the COVID-19 pandemic on workload and staff absences.⁴⁸ Of note, while 240 preceptors were invited to participate, only 95 of these (39.6%) were active preceptors, which is defined as having agreed to be available to host a student within the previous 12 months. Furthermore, while preceptor training is recommended by the APC, the voluntary nature of precepting poses difficulties in mandating preceptor participation. This is the experience for many current programs with low participation rates being commonly reported.^{4,42} In O'Sullivan's study on preceptor orientation and development programs in 2020, it was found that while most schools offered preceptor orientation and development at least annually, on average 25% of the school's preceptors attended live preceptor development events.⁴ A study in 2020 found that preceptors teaching more experiential placement students are more likely to participate in training. They suggested that advertising the program to coincide with common precepting schedules may improve preceptor participation rates.⁴⁹ This program was designed to provide an orientation and tailored training to JCU preceptors; however, it did not consider the experience of preceptors. Studies indicate that preceptors who have been supervising students for several years felt that training is currently geared towards novice preceptors and there is a need for further individualization of training to cater for more experienced preceptors.^{5,31,50}

Learning settings can be enriched through collaboration and interaction, with preceptors valuing opportunities to network and interact.^{4,5,39} While the online discussion forum included in this program was intended to promote interaction, the use of the forum was particularly low, again reflecting the current high workload of pharmacist preceptors and the optional requirement for participation. Low participation in the discussion forum may also have been the result of the compulsory requirement for attendance at the small group interactive online training session, which provided an alternative and more direct means of dialogue between preceptors.

Preliminary results from the post training evaluation survey indicate that preceptors were overall very positive about the program, particularly appreciating the online networking session. The full results of the post training evaluation will be the subject of a future article.

Limitations of this study include the low number of preceptor training program completions, which was thought to be due to the already high workload of pharmacist preceptors, as well as the fact that only 39.6% of preceptors invited to participate had indicated a willingness to host a student within the past 12 months. There was potential for a positive response bias with the researchers being known to most preceptor participants.

While the overall response rate for the needs analysis was low, the mixed methods study design with a participatory approach provided breadth and depth to the analysis, thus increasing the validity of the findings. This approach was also instrumental in ensuring that the program was able to be tailored to the needs of JCU preceptors. The broad experience of the research team in both teaching and pharmacy practice was advantageous in providing the most appropriate educational design for the program.

It is anticipated that this program will continue to be offered on an annual basis, with refinements being continually undertaken in response to stakeholder feedback. Considering preceptor feedback from previous studies, the wide variation in preceptor experience in both practice and precepting may warrant the streaming of preceptor development programs to cater for both the novice and the more experienced preceptors.^{5,17}

It is expected that the existing professional requirements for preceptor development will necessitate mandatory training in the future, which will further promote the development of training programs across Australia. While this program is currently focused on training community pharmacy preceptors, there is potential for it to eventually be expanded to include all preceptors across the broad range of experiential placement sites. The general principles of precepting are similar across a range of health professionals and with the increased emphasis on interprofessional practice in healthcare systems, interprofessional training for preceptors may be a practical and cost-effective approach to facilitate preceptor development, with potential for collaboration with other health professional programs such as medicine and nursing.^{30,51}

Although preference for preceptor development tailored to institutions and the individual preceptor has been identified,^{4,5} there are notable similarities in key content among documented preceptor development programs. Therefore, consideration could be given in the future to the establishment of a national preceptor development platform or framework, with the flexibility to accommodate the needs of the institution and the preceptor. This has been the experience in Canada, where a prototype for a national online preceptor development program was developed, with the potential

for further refinement and implementation across Canada.^{15,26,46,50} The continued development of specific competencies for pharmacist preceptors will provide a further underpinning framework for preceptor development programs.¹⁴⁻¹⁶

8.6 Conclusions

The training and development of pharmacist preceptors is considered crucial to the success of experiential placements. This study provides an example of a tailored training program which has been informed by the previous literature, as well as through a comprehensive needs analysis and direct consultation with the profession. The development and implementation of this program has been strategically planned and structured to provide preceptor flexibility, with evidence-based and educationally focused content, and linked to a national competency framework. Ongoing modifications and extensions to this program in response to program feedback should ensure that it continues to meet the individualized needs of all preceptors. The further development of specific preceptor competencies for pharmacists is recommended to provide and maintain quality and consistency for future preceptor training programs. An increased focus on preceptor development in pharmacy programs will ensure that student placement experiences are of high quality and provide maximum benefit for both the preceptor and the student, promoting the achievement of optimal graduate outcomes.


Supplementary Materials: Supplementary File 8.1: Table S1 and Figure S1

Table S1: Outline of JCU Online Preceptor Training Program

<p><u>JCU Pharmacy Preceptor Training - Program Outline</u></p> <ul style="list-style-type: none">❖ Welcome to the program❖ Module 1 – Program Overview and the preceptor as a ROLE MODEL❖ Module 2 – The preceptor as an EDUCATOR❖ Module 3 – The preceptor as an ASSESSOR❖ Module 4 – The Preceptor as a MENTOR❖ Preceptor online small group interactive NETWORKING SESSION❖ Preceptor online discussion forum (optional)❖ Post-training survey and Certificate of Completion



Organisation Content

 Welcome to the program
Visible to participants ▾

 Copyright Statement.pptx
Visible to participants ▾

Module 1 - Program Overview and the Preceptor as a ROLE MODEL
Visible to participants ▾

Module 2 - The Preceptor as an EDUCATOR
Visible to participants ▾

Module 3 - The Preceptor as an ASSESSOR
Visible to participants ▾

Module 4 - The Preceptor as a MENTOR
Visible to participants ▾

Figure S1: JCU Pharmacist Preceptor Training Hub Organizational Platform

8.7 Chapter 8 – References

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Chapter 9 Program Evaluation

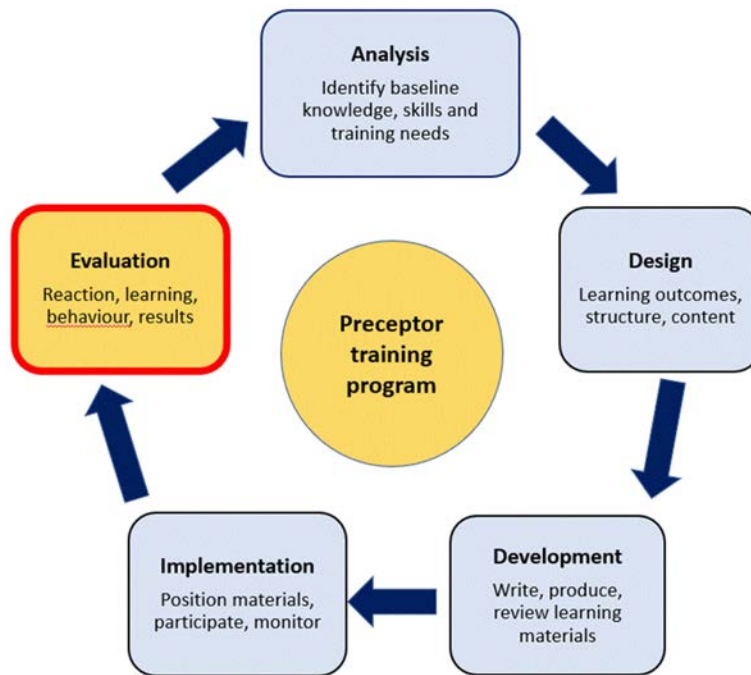
This chapter describes the evaluation of the JCU preceptor training program. Program evaluation is the final phase of the ADDIE model for instructional design and ensures that the developed program has met its learning objectives as well as the needs of the preceptors. The evaluation undertaken in this study has considered the perspectives of both preceptors and students. This article is being prepared for submission to *Currents in Pharmacy Teaching and Learning*.

Knott G, Mylrea M, Glass B. Pharmacist and student evaluation of a preceptor training program in a regional Australian university: a multi-method study.

Submitted to *BMC Medical Education* in September 2023

Authors' contributions

Gillian Knott conducted the research and prepared the manuscript. Beverley Glass and Martina Mylrea supervised the research and reviewed the manuscript prior to submission.



ADDIE Model for Instructional Design

9.1 Abstract

Background: Increased emphasis on workplace-based learning within pharmacy curricula has led to a focus on the quality of preceptors and the provision of preceptor training, with a diverse range of training programs for preceptors being developed across the globe. To ensure that preceptors are trained appropriately and deemed to be competent in their role, it is essential that all training programs are suitably evaluated. This research aimed to evaluate an online preceptor training program at a regional Australian University.

Methods: Kirkpatrick's four level model for assessment of training was used to evaluate this program. A multi method approach included a preceptor post training survey and interviews and a student survey evaluating the preceptor. Preceptor survey data were analysed using descriptive statistics and content analysis, while inductive thematic analysis was used to analyse the interviews. Student evaluations of trained and untrained preceptors were compared to determine whether training had impacted on student-rated preceptor effectiveness.

Results: Twenty-eight preceptor post-training surveys were received, ten preceptor post-training interviews were conducted, and 35 student surveys were completed. The program was rated positively overall, with notable mention of the interactive networking session, which was rated by 96.3% of preceptors as good or excellent. Following their first post-training student placement, preceptors found that their overall confidence levels had improved, particularly in relation to student management, evaluating students and providing feedback. Student evaluations of preceptors revealed improved ratings of trained versus untrained preceptors, especially as effective communicators.

Conclusions: This study demonstrated that training had a positive impact on preceptor attitudes, behaviour and confidence levels. From the perspective of the student, training was also found to improve preceptor performance. These results highlight the beneficial effects of training for preceptors, to optimize the student placement experience and their preparation for future practice.

Keywords experiential education, program evaluation, preceptor training, pharmacist preceptor

9.2 Background

With the current focus on producing work-ready pharmacy graduates, a significant amount of experiential placement is embedded within pharmacy curricula, highlighting the important role of pharmacist preceptors, particularly as a role model and linking theory to practice.¹⁻³ Preceptors, as clinical supervisors, are often challenged by their ability to combine their role as a student preceptor and the fulfilment of their professional responsibilities as a pharmacist, in the provision of high-quality service and advice to patients. Furthermore, while they may be knowledgeable and highly qualified in their field, they do not necessarily have skills in the areas of learning and teaching, assessment, and providing feedback.^{4,5} They may also have a limited understanding of the university curriculum and their roles and responsibilities as a preceptor, both of which are necessary to identify and address the specific needs of the student. Training is therefore strongly recommended for preceptors, to ensure that they are informed, confident and competent in their precepting role.^{6,7}

Documented preceptor training programs reported in the literature are diverse in nature, with some programs being developed for all preceptors, and some being specific for intern, resident or student preceptors.^{8,9} Programs may have a focus on community or hospital pharmacy and may be designed for a single program, a single university or for a consortium of universities.^{8,9} In general, it is accepted that due to the diversity of both preceptors and placement sites, programs should be tailored to requirements of the specific program or institution, although there should be some standardization of key program elements.^{1-3,8,10} Programs can vary widely in both structure and content and may include face-to-face or online delivery methods, with flexibility of attendance being desirable.^{1,8,10} Program design should consider preceptor roles and responsibilities, relevant preceptor competency standards and the requirements of the program or university, including the availability of program resources. The requirements of professional and accrediting bodies and the individual needs of the preceptor should also be considered.³ While preceptor training and development programs are now a component of most university health programs, there remains no consensus on the ideal structure and content of such programs.^{6,8,10} Once developed, it is recommended that all preceptor training programs are appropriately evaluated to ensure that they are fit for purpose and have met the needs of both the preceptors and the students.

While a range of preceptor training programs have been documented in the literature,^{8,9} there are few examples of program evaluations, with most conducted from the perspective of the preceptor only. These evaluations have included quantitative post-training surveys, qualitative post-training interviews, post-training focus groups or discussions and pre and post training surveys.¹¹⁻¹⁸

In line with Kirkpatrick's model of training evaluation criteria, a comprehensive program evaluation should identify the effect of the program on the preceptor, in terms of their learning and changes related to their precepting practices, but also to ascertain whether these changes have improved outcomes with respect to both preceptor practice and student performance.¹⁹ This study reports on the evaluation of a community pharmacy preceptor training program, which was implemented at James Cook University (JCU) in Australia in 2022. The study aimed to evaluate the impact and outcome of the preceptor training program on:

1. Preceptor self-reported learning, confidence levels and precepting behaviours.
2. Preceptor performance through student evaluations of their preceptor.

9.3 Methods

James Cook University requires pharmacy students to complete 600 hours of experiential placement during their BPharm (Hons) degree, mainly in the third and fourth year of their degree, under the supervision of a pharmacist preceptor. In 2022, an online preceptor training program was designed, developed and implemented for JCU community pharmacy preceptors. The program consisted of four flexible learning modules based on the main preceptor roles (Role Model, Educator, Assessor, Mentor) and a small group online interactive networking session, with optional participation in an online asynchronous discussion forum. The design of the program was informed by a comprehensive preceptor training needs analysis and collaboration with a preceptor training expert advisory group. Members of the advisory group included the research team, two JCU pharmacist preceptors, and a representative from both the Pharmaceutical Society of Australia and the Australian Pharmacy Council (APC).^{20,21} Twenty-eight community pharmacy preceptors completed the program.

Following implementation, the program was evaluated using Kirkpatrick's model of training evaluation criteria (reaction, learning, behaviour, results) as a guide.¹⁹ This evaluation included a preceptor post-training survey, preceptor post-training interviews and a survey comparing student evaluations of trained and untrained preceptors.

Preceptor post-training survey

An anonymous survey was administered using the Qualtrics® survey platform to all 28 pharmacist preceptors, who had completed the training program. This survey aimed to address levels 1 and 2 of Kirkpatrick's model, which focuses on the participant reaction to the program and the level of

learning achieved through the program. Preceptors were invited to participate through an online link within the preceptor training online organizational site.

The survey employed a 5-point Likert scale to ascertain overall preceptor views on the adequacy and relevance of the program content and the appropriateness and convenience of the program format for their current needs. Preceptors were then asked to rate the usefulness of each individual component of the program, again using a 5-point Likert scale to grade their responses. Two open response questions asked preceptors to comment on the best aspects of the training program and any suggested improvements. Respondents were asked to provide details of their past precepting experience and training, to allow for comparisons between preceptor experience and their responses. The survey was pilot tested by the research team for face and content validity.

Survey data were transferred into SPSS® (SPSS 27 Statistics for Windows, Armonk, NY: IBM Corp) and analysis was conducted using descriptive statistics. To identify any association between preceptor responses and past precepting experience, Chi-square tests were also conducted, with significance level being set at $\alpha=0.05$. Content analysis was used to identify common themes from the open response questions.

Preceptor post-training post-placement interviews

Interviews were conducted with all preceptors who received a placement student within eight months of completing preceptor training. The aim of these interviews was to assess the longer-term outcomes of the training program and evaluate any self-reported changes to precepting behaviour that may have resulted from preceptor training. This will address level 3 of Kirkpatrick's model of training evaluation criteria (behaviour). Prior to conducting the interviews, several pilot interviews were undertaken with members of the research team to validate the interview questions.

Preceptors who had completed the training program and had also hosted a student post-training, were identified through the JCU placement program records. Each preceptor was invited by email to participate in a semi-structured telephone interview, with an estimated duration of 15 to 20 minutes. Preceptors were asked about any challenges that they experienced when supervising their last placement student, then questioned about the effect of preceptor training on their attitudes and practices, and their confidence levels as a preceptor. Finally, preceptors were asked to identify additional topics or support measures, which could be included in future programs. Background information on their precepting history and previous training attendance was also collected, to enable comparisons to be made during data analysis. Interviews were recorded, transcribed verbatim and then analysed according to Braun and Clarke's method of thematic analysis,²² using

NVivo® (NVivo; QSR international Pty Ltd, Version 12, 2018). Data were coded and themes were identified within these codes, which were then presented in the manuscript, along with illustrative quotes.

Student evaluation of the preceptor

Following each experiential placement, all JCU students are required to evaluate their preceptor via a 'Student evaluation of the preceptor' anonymous survey. In this survey, students are asked to rate their preceptor using a 5-point Likert scale as 1, Poor; 2, Average; 3, Good; 4, Very Good; or 5, Excellent, for 18 different precepting skills. Two demographic questions are included to ascertain the nature of their placement site (Community pharmacy, Hospital pharmacy or Other). At the end of the survey, students are invited to make open comments about their preceptor.

Student surveys of all community pharmacy preceptors were collected in the year following training. Due to the anonymity of the student survey, for the purpose of identifying preceptors who had been trained, students were additionally asked in the post-training evaluation survey to state whether their preceptor had completed the JCU preceptor training program.

Data from the student surveys were imported into SPSS® for analysis. Comparisons were made between post-training student evaluations of preceptors that had completed training and those that had not completed training. A Mann-Whitney U test was conducted to identify any significant difference between mean student ratings of the precepting skills of trained and untrained preceptors, with statistical significance set at a p value of < 0.05 . For this purpose, the 18 precepting skills evaluated in the survey were analysed individually and as four grouped categories, based on the four main roles of the preceptor: role model, educator, mentor and assessor.²³

Ethics approval to conduct this study was obtained from the James Cook University Human Ethics Committee (H8276) and informed consent was obtained from all participants of the surveys and interviews.

9.4 Results

Preceptor post-training survey

Twenty-eight responses were received for the preceptor survey, representing a response rate of 100%. Overall, the preceptor training program was very well received, with 92.9% of preceptors agreeing or strongly agreeing that the program content had an adequate depth of information and

relevance to their current needs and that the format of the program was appropriate and convenient. (See Figure 9.1)

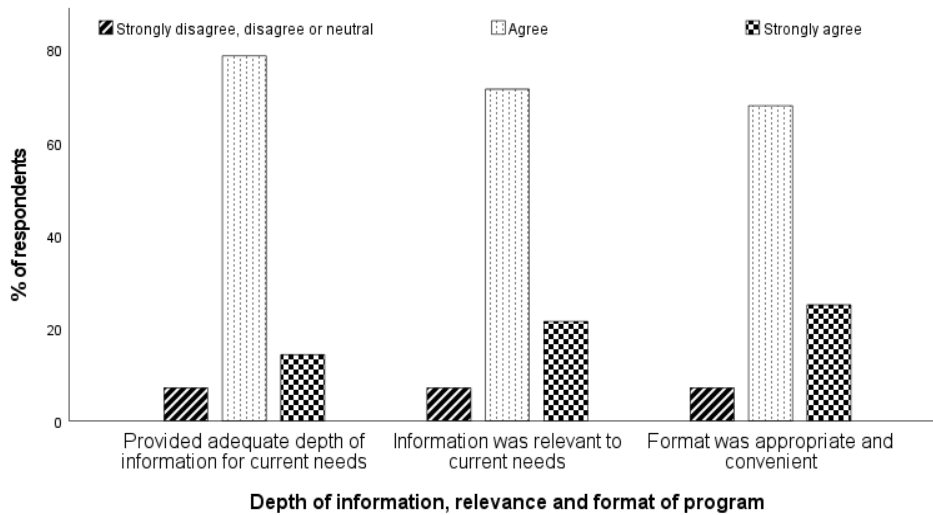


Figure 9.1: Preceptor ratings on information, relevance and appropriateness of training program (n=28)

In terms of the individual components of the program, preceptors rated the interactive networking session as the most useful component, with 96.3% of respondents finding this good or excellent. 92.9% of respondents rated Module 2 (Educator) and 3 (Assessor) as good or excellent and 92.6% rated Modules 1 (Role Model) and 4 (Mentor) as good or excellent. (See Figure 9.2). Regarding the overall program, 22.2% of respondents rated the program as excellent and 66.7% as good, with the remaining 11.1% rating the program as fair and no preceptors rating the program as less than fair. Chi square analyses did not identify any significant associations between preceptor demographics and their responses to the post-training survey.

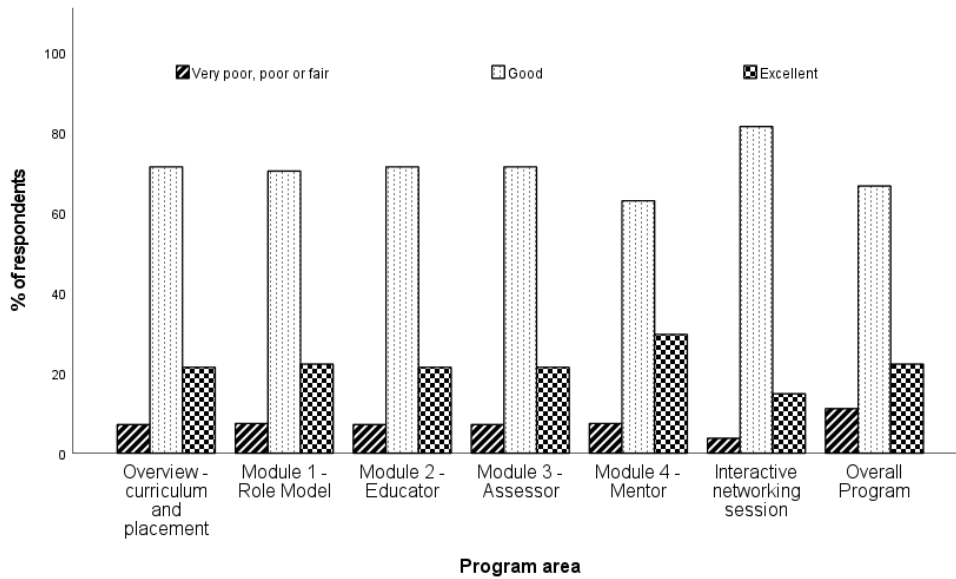


Figure 9.2: Preceptor ratings of usefulness of areas of the training program (n=28)

Preceptor post-training survey – Content analysis

Content analysis was used to analyse the two open questions in the preceptor survey. Comments on the best aspects of the program were themed into four categories, including program format, program content, networking and training benefits. Table 9.1 provides a summary of the best aspects of the program and associated quotes.

Content analysis on the comments for suggested improvements to the training program can be found in Table 9.2. Several preceptors commented on the length of time required to complete the program, with two preceptors identifying that some videos used in the modules were not pharmacy specific. Two preceptors noted that course material did not consider the experience of the preceptor, while one preceptor suggested that for preceptors who had not completed their pharmacy degree at JCU, more depth on the JCU curriculum would have been appreciated.

Table 9.1: Survey content analysis on the best aspects of the training program

Best Aspects	Preceptor quotes
Format	<p><i>"Best taken at own pace and information provided can ensure depth of learning".</i></p> <p><i>"It was good that the program was self-paced".</i></p> <p><i>"Depth of information"</i></p> <p><i>"I enjoyed the format of the training - the combination of readings and videos was good".</i></p>
Content	<p><i>"I found all of the modules to be of help, strategies given for feedback and the 1-minute preceptor concept helps to leverage the short time instances we have with students in amongst the business of the day where larger chunks of time may not be available - It's a change of perspective that can help empower preceptor and learner."</i></p> <p><i>"How to deal with unmotivated students and problematic behaviour".</i></p> <p><i>"Liked positive talk training".</i></p>
Networking session	<p><i>"I thought the networking activity was the most beneficial part of the program in terms of being able to apply the information to specific scenarios but also to gain insights and experiences from other preceptors".</i></p> <p><i>"The hour and a half of connecting with other preceptors in the program was great."</i></p> <p><i>"Interactive networking"</i></p> <p><i>"Intersessional active networking"</i></p> <p><i>"Networking session was great".</i></p> <p><i>"The video link with Gillian was great to summarise the program and content".</i></p> <p><i>"Talking with other preceptors on how they would handle situations".</i></p>
Benefits	<p><i>"Formalised my experience into a learning platform".</i></p> <p><i>".... and improvements to my scope and practice were highlighted."</i></p> <p><i>"The training program is suitable for both experienced and less experienced preceptors".</i></p>

Table 9.2: Survey content analysis on suggested improvements to the program.

Suggested improvements	Preceptor quotes
Time consideration	<p><i>"Because of the depth, it takes a long time to get through".</i></p> <p><i>"Time required to complete".</i></p> <p><i>"Consider the time required by practising pharmacists in undertaking this study. The course content was interesting, however, could have been delivered in a much more time efficient manner".</i></p>
More pharmacy specific video examples	<p><i>"I found the medical videos very interesting though and they certainly highlighted communication skills but believe this part of the programme could be improved with swapping over to pharmacy specific videos".</i></p> <p><i>"Would like to have more examples and videos on training highlighting more pharmacy specific roles".</i></p>
Consider the more experienced preceptor	<p><i>"Course material was a little basic in some areas particularly for experienced preceptors".</i></p> <p><i>"Program should be considerate of the amount of experience the preceptor already has".</i></p>
More on JCU curriculum for non-JCU graduates	<p><i>"A little more depth on the JCU pharmacy curriculum would be good as I am not a JCU graduate".</i></p>

Overall, the course was regarded by preceptors as professional, interesting, and provided a different perspective on precepting.

"A lot of information on topics I didn't think would have that much information to publish. Gave a different perspective on ideas".

"Professional and well done".

"The course content was interesting".

Preceptor post-training post-placement interviews

Ten interviews were conducted with preceptors who had completed the training program and subsequently hosted a student. The average length of the interviews was 17.5 minutes. Precepting experience ranged from less than one year to 22 years, with preceptors having hosted between one and 50 students each, as well as from none to more than 20 intern pharmacists. Six of the ten preceptors had received no previous training, with three having completed or partially completed an online intern preceptor training program through the Pharmaceutical Society of Australia or the Pharmacy Guild of Australia, with one completing an online student preceptor training program in 2005 (unsure of which university). All preceptor responses were coded into overall categories and

inductive thematic analysis was used to identify themes within these categories. Four categories were coded, including preceptor experiences with their first student post-training, outcome of training on attitudes and practices, effect of training on preceptor confidence levels, and suggestions for future training programs.

Preceptor experiences with their first post-training student

All preceptors reported no major challenges with their first post-placement student, with all progressing smoothly and students being motivated, professional, having a good work ethic and being keen to participate in different roles. Most preceptors agreed that time management could be a challenge at times, particularly during busy periods in the pharmacy. However, this was effectively addressed by careful planning and ensuring that adequate staff were available, allowing them to spend structured time with their student. One preceptor had an issue trying to make up lost time for a student who was ill, whilst another preceptor had to juggle an increased workload due to public holidays and having a locum pharmacist.

“I find the main challenge is making sure that the student has a fulfilling experience and seeing as much of the pharmacy as possible while not interfering with any workflow ...”

Preceptor 6 – Male, 3 years of precepting.

Several preceptors identified the start of placement as the most difficult time when the challenge was in adapting to the level of the student, deciding on what to do with the student and establishing a routine. One preceptor commented that their student required some encouragement to communicate with patients. They also were critical of their student completing written placement activities during placement, which they considered to be a less valuable use of placement time, where they should focus on the more clinical aspects of pharmacy practice. Another preceptor who hosted a year 4 student found it difficult to provide challenges and appropriate feedback due to the already high standard of their student.

Effect of training on preceptor attitudes and practices

Generally, preceptors found that the training program provided a solid foundation for their precepting, which was beneficial to all preceptors, regardless of experience. Preceptors reported being now alerted to the quality of their precepting and providing a high standard of placement experience for students.

‘... It’s made me more keenly aware to make sure that they were having the right type of placement experience’ Preceptor 10, Female, 20 years of precepting.

The networking session was positively received, with participants finding significant benefit from sharing their precepting stories and learning from each other's experiences, particularly those with different backgrounds in terms of both work environment and from a generational perspective. This was thought to promote bonding with other preceptors and further networking in the future. One first-time preceptor commented that as a new preceptor, it was good to see the 'pitfalls' of precepting before they happen.

Preceptors were reminded by the program to take time to conduct an initial orientation, which can assist in gaining a better knowledge of the level of the student, setting preceptor expectations and identifying what the student wants to achieve from their placement. The JCU course overview was found to be very helpful in gauging the level of knowledge of the student, with one preceptor commenting on the difficulty in obtaining this information directly from the students. One preceptor also felt that the student level should also include their level of confidence and individual values, which can influence their ability to adapt to the placement environment. Setting expectations was believed to be of importance to ensure a smooth transition into placement and was also helpful in planning student activities. By identifying the knowledge and skills that the student is looking for, preceptors found that they could then tailor their precepting to the needs of the student.

'... I felt a lot more comfortable reaching out [to students] to begin with.... to ask.... 'This is what I am hoping to achieve, I want to know what you want to achieve ... what sort of expectations you have... and this is my expectations.' That meant there was a lot of transparency between the two of us...." Preceptor 4 – Male, 2 years of precepting.

Preceptors reported that the training program had enhanced their teaching ability by improving their lines of communication with their students. The one-minute preceptor technique for teaching and feedback was thought to improve efficiency and lead to better consistency of teaching.^{4,24}

Several preceptors mentioned passing this technique on to other pharmacists and even to other staff members. One preceptor believed that while the training program was helpful, their teaching ability had additionally improved with age and experience.

Several comments focused on the impact of the training program on the preceptor's ability to manage students. It was thought that the program gave them a better insight into the student perspective and their journey. They reported being more aware of the different ways to approach and motivate students, and the generational and other differences that can affect their learning. Training provided a reminder to put aside time for their student, particular mid-placement, and

provided additional advice on communication with students to ensure a positive placement experience. Although most preceptors reported no conflict during their last placement, it was noted that training on how to manage difficult or challenging students was useful to know for the future.

Training was found to assist preceptors with practical strategies to have productive feedback conversations and preceptors felt more conscious of their approach to the provision of feedback, ensuring that it was constructive, timely and conducted in collaboration with the student. They were more conscious of providing feedback regularly throughout the placement and felt clearer about the expectations of the university about feedback. They reported that their feedback was being well received by their students, with better responses than before program completion. One preceptor identified that the example videos provided in the training program were a useful tool in assisting them to provide better feedback. About the student evaluation process, preceptors felt that they now had a better understanding of the feedback expected from preceptors on their student evaluation form and that the completion of this evaluation form was now a much easier process. They understood that students in most cases appreciated an honest appraisal of their performance and were now less likely to over-rate their student. Although some students were of a high standard already, preceptors recognized the importance of giving students room to grow and providing some direction for their future learning. They also noted the importance of involving the student themselves in the feedback process.

'... it gave me more confidence to say I guess we always sugarcoat everything and try not to upset them but, at the same time, being able to say it effectively gave me more confidence to give them constructive feedback' Preceptor 2 – Female, 15 years of precepting.

'... It provided me with an opportunity to have some conscious thought on how I was going to approach feedback. Prior to doing the training As my experience had been as a student, feedback was quite haphazard ...' Preceptor 4 – Male, 2 years of precepting.

Effect of training on preceptor confidence levels

In terms of confidence levels, it was found that following the training program, preceptors felt more confident in planning to receive a student, as well as in setting placement expectations. For the more experienced preceptors, the program formalized and reinforced their prior knowledge, making them more confident in their ability to provide a good precepting environment. Preceptors reported also that training had given them more confidence in managing students and tailoring their precepting to suit the individual learner. In addition, training had also improved their confidence in providing constructive feedback to students and in discussing their evaluation report.

*'Honestly, I think it was an invaluable program, for myself at least, I don't think I would have managed as well if I didn't have the tools available in my toolkit and it definitely gave me more confidence to continue precepting'*Preceptor 7 – male, first time precepting.

Suggested areas for future training

Most preceptors interviewed were happy with the training program and felt that all relevant areas were well covered. This included experienced preceptors, who felt that while they did have experience, appreciated the formal training to provide reassurance that they were performing at the right level. In terms of future training, it was suggested that experienced preceptors attend a refresher program every few years or a condensed version of the current program.

There were several comments relating to university expectations, where preceptors reinforced their desire for an understanding of the placement requirements and the current level of the student within the curriculum. A preceptor checklist was suggested as a way of ensuring that preceptors were fulfilling all university requirements for the placement. In terms of the placement itself, one preceptor suggested that preceptors should have more input into the design of placement activities and reiterated their need for regular communication from the university during the placement.

Aside from this, one preceptor suggested more information on generational differences and on dealing with student conflict. Another preceptor required further information on how to challenge and further develop students, who were already of a high standard.

Student evaluation of the preceptor

Of the 49 student surveys collected post-training, 35 were from community pharmacy placements, with 10 of the 35 preceptors evaluated having completed the training program. Mean values of student ratings for 18 different precepting skills and attributes post-training are provided in Table 9.3, as well as for the 4 grouped preceptor roles.

Table 9.3: Mean student scores for preceptors' skills and attributes (18 items) and 4 role groups (n = 35)

Preceptor skill or attribute	Mean student score
M1 - My preceptor was enthusiastic and engaged with me	4.49
M2 - My preceptor was sufficiently available for me	4.16
M3 - My preceptor clarified their expectations of me during my placement	4.00
M4 - My preceptor was able to manage any conflict during my placement	4.72
Mentor – Group mean score (M1 + M2 + M3 + M4)	4.34
RM1 - My preceptor was an effective communicator	4.53
RM2 - My preceptor answered my questions clearly and in a timely manner	4.55
RM3 - My preceptor demonstrated effective patient counselling and clinical decision making	4.63
RM4 - My preceptor promoted evidence-based practice and continuing professional development	4.64
Role Model – Group mean score (RM1 + RM2 + RM3 + RM4)	4.59
E1 - My preceptor understood my needs as a student	4.39
E2 - My preceptor understood the educational requirements of JCU Pharmacy	4.24
E3 - My preceptor was an effective teacher	4.42
E4 - My preceptor was able to adjust their teaching style to suit my needs	4.40
E5 - My preceptor provided me with autonomy that was appropriate to my level of experience/competence	4.59
E6 - My preceptor promoted my critical thinking and problem-solving ability	4.52
Educator – Group mean score (E1 + E2 + E3 + E4 + E5+ E6)	4.43
A1 - My preceptor assessed my learning appropriately and fairly	4.52
A2 - My preceptor provided timely, regular, and constructive feedback to me	4.47
A3- My preceptor was comfortable in providing any poor feedback to me	4.49
A4 - My preceptor used online technology effectively when assessing me and providing feedback	4.47
Assessor – Group mean score (A1 + A2 + A3 + A4)	4.49

* M = Mentor RM = Role Model E = Educator A = Assessor

It was found that there was a significant difference between trained and untrained preceptors in their skill as an effective communicator (Mann Whitney U: $Z = -1.999$, $p = 0.046$) with trained preceptors having a significantly higher score. Two preceptor skills were close to significant, including the preceptor's skill in promoting critical thinking and problem solving (Mann Whitney U: $Z = -1.939$, $p = 0.052$) and in using online technology during assessment and feedback (Mann Whitney U: $Z = -1.193$, $p = 0.053$). When comparing the mean student rating score for the combined group skills of a Role Model, Educator, Mentor and Assessor, there were no significant differences. Students were invited to provide open feedback on their preceptors in the evaluation survey. Three of the 10 student surveys of trained preceptors included open feedback, and this was all positive.

'Very positive placement, there's nothing I can think of to fault. All preceptors were engaging, answered all questions with enthusiasm and were happy to give me honest feedback.'

Of the 25 student surveys of untrained preceptors, 12 open comments were given, of which 5 contained some negative feedback, including lack of communication skills of the preceptor, lack of assistance from staff and variable availability of the preceptor during the placement.

9.5 Discussion

This study aimed to evaluate an online pharmacist preceptor training program for community pharmacy preceptors at JCU, from the perspective of both the preceptor and the student, using a preceptor survey and interviews and a post training student survey. The preceptor survey, conducted immediately post-training, revealed highly positive responses about the impact of the program in terms of the depth of information provided, relevance and convenience, with the interactive networking session being regarded as particularly valuable. Preceptor interviews conducted after hosting a student on placement identified numerous self-reported improvements to precepting attitudes and practices, as well as improved confidence levels in many areas of precepting. Student evaluations of preceptors also identified an improvement in trained versus untrained preceptors about the preceptors' skills as an effective communicator.

The positive preceptor feedback from the training program survey was reflective of the quality of the program and was not unexpected, given that program development was underpinned by a comprehensive JCU preceptor needs analysis.^{20,21} This result also aligned with program evaluations reported in the literature, of which the majority were developed based on an examination of current

literature or a needs analysis, with evaluation frequently including a preceptor self-reported survey.¹⁴⁻¹⁸ Cerulli and Briceland in 2004 conducted a training program for community pharmacists, who provided Community Pharmacy Advanced Practice Experiences (CPAPes). This program, consisting of two live interactive six-hour training sessions, was evaluated, with positive feedback on the relevance and interest of the content and a positive effect on preceptor knowledge of pharmaceutical care.²⁵

While all areas of the training program were received positively, the most useful area of the program was identified as the interactive networking session, which highlights the importance of communication and interaction between preceptors. This finding is consistent with the literature, with preceptors appreciating opportunities for interaction within preceptor development programs.^{6,14,16,18} Participants in a master preceptor train-the-trainer program evaluation identified the importance of networking and collaborating with other preceptors to learn from each other's precepting experiences.¹⁵ The balance between the provision of written resources and participant interaction is also important. In a study by Smith et al, qualitative feedback on a pharmacy preceptor full-day face-to-face development bootcamp revealed that while feedback was very positive, participants also expressed a desire for more session interactivity.¹⁶

Interviews with program participants following their first post-training placement found that the training program had been beneficial to all preceptors, regardless of experience. Conversely, some preceptors did comment in the post-training survey that the program course material could have considered the level of experience of the preceptor. It was noted that these comments came from preceptors with more than 5 years of precepting experience, who had already completed an intern preceptor training course. Many preceptor training programs have considered and addressed the issue of variation in precepting experience and have ensured that their programs are flexible and tailored to suit the experience of the preceptor. Vos et al developed a comprehensive range of preceptor development modules in a variety of formats, which allowed preceptors to individualize their learning, and this was well received by preceptors.¹⁸ Pogge et al reported on a teaching and learning curriculum for preceptors and residents, which provided some streamlining of content and allowed for a number of choices in terms of workshops attendance.¹⁴ Feedback from Smith et al's evaluation distinguished between new and experienced preceptors, with participant feedback suggesting a full-day session for new preceptors and a half-day session for experienced preceptors.¹⁶ This was also the suggestion from JCU preceptors, that experienced preceptors attend a refresher or condensed program every few years.

Most preceptors found that the training program had impacted their attitude towards precepting by giving them a better understanding of the purpose of placement and becoming more conscious of their responsibilities as a preceptor in providing a high quality placement experience. This result was like other literature which identified positive changes to attitudes and motivation towards precepting.^{15,18}

Preceptors found that the program had improved their knowledge and skills in many areas of precepting, including assessing the level of knowledge of the student, how to approach and motivate students and assessing and providing feedback. The one-minute preceptor was identified as a useful technique in providing student education and feedback, which aligned with literature findings.^{4,24} Le et al found that participants identified strategies such as the one-minute preceptor, the provision of constructive feedback and tailoring of the learning experience, which had impacted positively on their precepting skills.¹⁵ Smith et al found in their preceptor development bootcamp that there were significant improvements reported by preceptors in their provision of direct instructions as well as verbal and written feedback.¹⁶ In the program evaluation conducted by Vos and Trewet on their preceptor development program, it was found that more than 90% of preceptors who completed the core training activity believed that it enhanced their attitudes, knowledge and skills.¹⁸

This study found that preceptor self-rated confidence levels had improved following training in a range of areas, including managing students, providing constructive feedback and discussing student evaluation reports. This is aligned with findings in the literature. Le et al found that their program improved participants' confidence in engaging student learners and in clinical teaching.¹⁵ Smith et al reported preceptor confidence levels trending upwards in all areas following the training.¹⁶

Preceptors in this study expressed a need for some direction from the university regarding expectations of preceptors and an overview of the curriculum. The provision of an orientation to precepting is a mandatory requirement of the Accreditation Council for Pharmacy Education (ACPE),²⁶ however, in O'Sullivan's survey of current preceptor orientation and development programs in the United States in 2020, it was found that only 65% of Schools of Pharmacy had met the ACPE requirements for preceptor orientation.¹⁰ Preceptors in the JCU evaluation also stated that the program had been a reminder to them of the importance of student orientation in identifying student needs, setting placement expectations and in planning student activities.

There are few evaluations of preceptor training programs that include the student perspective.^{11,18} A comprehensive preceptor training program developed in the US was evaluated by program participants (preceptors) as well as by students, using a standardized student evaluation of

preceptors, administered both before and after program participation.¹⁸ This study revealed that following training, students rated more preceptors as 'good' and less preceptors as 'fair' or 'poor', while the number of preceptors rated as 'excellent' did not change. A 2015 study evaluated three objective structured teaching exercises (OSTEs) from the perspective of both preceptors and a selection of standardized students. This study found a significant increase in preceptor confidence in performing OSTEs, however, the training process was both time and resource intensive. Students agreed with preceptors on areas, where preceptors were least and most confident in providing feedback.¹¹

From the analysis of the JCU post-training student evaluations, it was found that from the perspective of the student, preceptor skills as an effective communicator were significantly improved by training. The ability to communicate effectively is one of the most important skills for any health professional, but particularly for preceptors, who are not only required to communicate with patients and other healthcare providers, but additionally to establish a professional relationship with the student. It is known that effective communication is not necessarily an innate skill and can improve with training.²⁷ Good communication skills are considered to be an essential foundation for effective student management, the provision of appropriate feedback and for conflict resolution.²⁸ The improvement in preceptor communication skills following training, which was identified from the student evaluation data, is consistent with the preceptor post-training interviews, where preceptors reported that the provision of additional tools and techniques to teach, manage and provide feedback more effectively has resulted in improved lines of communication with students.

Student ratings of the preceptor in their ability to promote critical thinking and problem solving was close to significant. Critical thinking is the process that facilitates clinical reasoning which, in the context of a healthcare professional, is a skill that enables them to use their existing knowledge to analyse and find solutions to clinical situations, thus putting their knowledge into practice.²⁹ Pharmacists use this key skill routinely every day when making clinical decisions and solving problems in the practice. Clinical reasoning can be a difficult skill to both describe and teach, however, it is recognized that while much can be learned from observing experienced healthcare professionals in the practice setting, this skill can be further developed by the preceptor through appropriate questioning and discussions with students.^{30,31} This result from the student evaluation survey indicates that the training program may have influenced preceptors by providing teaching strategies, such as the One-Minute Preceptor,³⁰ that promote critical thinking.

The major limitation of this study was the low participant numbers. This may have affected the ability of the data to detect significant associations between preceptor demographics and survey responses. Although the preceptor survey was anonymous, there may have been some positive response bias due to the involvement of the principal researcher in conducting the interactive networking sessions, while also being previously known to several of the participants through their association with the university.

While the student survey of the preceptor was also anonymous to promote participation, low overall student numbers at JCU, which were partially attributed to the Covid-19 pandemic, resulted in a lower than expected number of student surveys received for analysis. Furthermore, with placement experiences being hosted at different times throughout the year following preceptor training, the time difference between program completion by the preceptor and the completion of the student survey may have varied. This may have affected the outcome of the student survey, with preceptor performance potentially changing over time.

9.6 Conclusion

This study describing the evaluation of the JCU pharmacist preceptor training program, has produced positive results. The training program was rated highly by participants, with the opportunity for preceptor interaction being the most favourable feature of the program. Positive changes to self-reported preceptor attitudes, behaviour and confidence levels were identified following this program, and student evaluations reported improved preceptor performance as an effective communicator. There are a limited number of evaluations of pharmacist preceptor training programs available in the literature, with few being evaluated from the perspective of both the preceptor and the student. Further studies which include the student perspective on preceptor performance following training are recommended, to complement post-training preceptor evaluations and ensure a balanced perspective. Through the appropriate design of preceptor training program evaluations, programs will continue to be modified and improved, ensuring a high quality, engaging and professionally relevant training experience for preceptors. This will result in enhanced placement experiences for students and an anticipated improvement in the quality of pharmacy graduates.

9.7 Chapter 9 - References

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Chapter 10 Conclusion and Recommendations

10.1 Conclusion

This study has both added to the literature on training of preceptors and confirmed the importance of preceptor training to ensure the quality of experiential placements and enhance the development of future pharmacists.^{1,2} With the increase in work-integrated learning embedded within the pharmacy curriculum, universities are primarily responsible for the training and support of pharmacist preceptors, who supervise their students during these placements.^{2,3} This need to ensure the quality of placements through appropriate preceptor development has been the motivation for this study, which has aimed to design, deliver and evaluate a preceptor training program for community pharmacy preceptors at James Cook University.

The scoping review of preceptor training presented the global literature on preceptor training programs and highlighted only a limited number of documented programs, with a range of different delivery methods, program designs and content. There are, however, even fewer preceptor training programs which have been evaluated, to assess the quality and relevance of training provided in these programs. Most programs have addressed the perceived core competencies of preceptors and been tailored to both to the needs of the particular school or university, and nature of the precepting environment.⁴ This scoping review therefore provided a broad overview of preceptor training programs, which informed the investigation of preceptor training needs and subsequently the design of the JCU training program.

The preceptor needs analysis was an important step in this study to gain an understanding, from the perspective of all key stakeholders, of the different roles and the ideal skills and attributes of the preceptor, and their views on training and support needs. The participatory approach that was followed in the design of this training program used surveys and interviews with preceptors, students and academic staff as well as an expert advisory group to obtain input from key stakeholders as well as oversight from the pharmacy profession and the accrediting body for pharmacy programs in Australia, the Australian Pharmacy Council (APC). This approach ensured that the final developed program was not only targeted to JCU preceptors but was current and relevant to Australian pharmacy practice.^{5,6}

The online program that was designed and delivered consisting of a series of modules providing content material relating to four main preceptor roles: Role Model, Educator, Mentor and Assessor⁷ was well received by preceptors. This was due to the provision of the desired training materials in a convenient format, with the self-paced nature of module completion allowing the required flexibility. The preceptor small group online networking session, which was conducted following module completion, enabled preceptors to interact through case-based discussions. This was considered by preceptors to be a highlight of the program, promoting the sharing of precepting experiences and facilitating ongoing preceptor communication. The post-training evaluation conducted following program implementation was comprehensive and provided for the participation of both preceptors and students. The favourable feedback received from preceptors about this training program extended not only to the learning gained from the program but also to the positive impact on their attitudes, behaviour and confidence levels. Student feedback has additionally shown that training has had a positive outcome on preceptor performance, particularly in relation to the important skill of communication. This program evaluation has therefore been successful in identifying the benefits of preceptor training.

To our knowledge, this is only the second pharmacist preceptor training program reported in Australia and the first to specifically target community pharmacy preceptors. The decision to focus on community pharmacy preceptors for this study was based on overall preceptor need, and considered the significant barriers faced by community pharmacists as clinical supervisors, in concurrently providing optimal pharmaceutical care to their patients, managing a workplace and supervising students.^{8,9} Furthermore, many JCU community pharmacy preceptors are located in rural and remote areas, often being a sole pharmacist, which may create additional challenges to accessing training and support.¹⁰ Stakeholders in this study also confirmed the difficulties that can be experienced in effectively balancing time and workload in a community pharmacy environment.

Prior to implementation of the JCU program, the Australian Pharmacy Preceptor Program was developed in 2005 to support preceptors of pharmacy students from four southern Australian universities, focusing on rural preceptors.¹¹ A further expansion of this program occurred in 2007 with the development of the Australian Clinical Educator Program, which was inclusive of several health professional preceptors, including pharmacists, again focusing on rural and remote preceptors.¹² In light of the relative absence of current Australian literature on preceptor training, the successful design, delivery and evaluation of this online program to 28 community pharmacy

preceptors of this regional university is a key achievement of this study and makes a significant contribution to the research on preceptor training and development in Australia.

10.2 Recommendations

This study has highlighted the importance of training for preceptors, who play a prominent role in developing pharmacy students in the practice. In the Australian context, preceptor training and development is in its infancy, with very few documented training programs being reported. Looking into the future, the following recommendations are provided to advance preceptor training and development and optimise the experience for pharmacy students during their experiential placements. An initial summary of these recommendations with relevant chapter(s) is provided in Table 10.1 below:

Table 10.1: Summary of recommendations with relevant chapters.

Preceptor training at JCU	Chapter
Future programs should continue to be adapted based on program feedback and in line with current practice and regulatory requirements.	8, 9
Expansion of the current training program could be considered, to include additional modules and to provide training for a wider range of preceptors.	3, 5, 8, 9
Preceptor training in Australia	
Pharmacy specific competency standards should be developed to inform a set of preceptor training guidelines, which could provide a framework for preceptor training programs across Australia.	6,8
Consideration could be given to the development of a national preceptor training program for Australia.	6, 8
General recommendations for preceptor training	
<i>Design</i> – Preceptor training program design should encourage communication and collaboration between the university and preceptors.	5,6,8
<i>Delivery</i> - Adequate university resources and incentives for preceptors should be available to support the delivery of preceptor training.	5,6,7, 8
<i>Evaluation</i> - Future training programs should be evaluated, as in this program, from the perspective of both preceptors and students.	9
<i>Evaluation</i> - Future program evaluations should aim to confirm an outcome, linking preceptor training and student performance.	9

Recommendation 1

Future JCU preceptor training programs should continue to be adapted based on program feedback and in line with current practice and regulatory requirements.

Change is acknowledged to be constantly occurring in all health professional environments, therefore it is recommended that appropriate ongoing evaluation of this current preceptor training program, should inform modifications, which are in line with future changes to pharmacy professional practice and regulatory requirements for pharmacy education, particularly those which relate to work-integrated learning.

The introduction of Entrustable Professional Activities (EPAs) for students and intern pharmacists in the workplace has led to a focus on competency-based education and assessment.^{13,14} In Australia, the APC has developed a set of workplace-based assessment tools for intern pharmacists, which have been designed to enable preceptors to assess practical skills such as clinical reasoning, decision making and communication.¹⁵ It is anticipated that, in line with developments in the US, these tools will additionally be modified for use in the assessment of pharmacy students during experiential placements. This will place further responsibility on the student preceptor and further justify the need for preceptor training in competency-based assessment.

Along with the regular review of program design and content, it is anticipated that this training program will continue to be conducted on an annual or biennial basis, with post-training evaluations ensuring that the program remains fit for purpose for JCU preceptors.

Recommendation 2

Expansion of the current training program could be considered, to include additional modules and to provide training for a wider range of preceptors.

This program was designed for all community pharmacy preceptors of JCU, regardless of their precepting environment and level of experience. Preceptor feedback from this study has indicated a need for further tailoring of the program to provide more individualized training. In recognition of the different levels of experience of JCU preceptors, consideration should be given to providing refresher training or additional more advanced training modules for experienced preceptors, covering content such as effective management of multiple learners or different levels of learners, conflict management and creating inclusive learning environments. Some preceptor training programs provide a range of options for preceptor development, with different delivery modes and

content topics, and this flexible training format has been well received by participants, allowing them to individualise their learning.^{9,10} This study reported that flexibility of training was a priority for most JCU preceptors, therefore the ability to choose from a suite of modules would be ideal to meet their diverse needs, and this is a potential area for program expansion in the future. A range of opportunities for further expansion of this program exist. While the program has been developed for community pharmacy preceptors of pharmacy students, with modification, it may be expanded to include hospital clinical educators, preceptors of intern pharmacists and preceptors from other health disciplines. The researcher has to date received several enquiries from community pharmacy groups in Australia who have expressed interest in this program to support their own intern preceptors through the establishment of a tailored training program for their pharmacy group.

Recommendation 3

Pharmacy specific competency standards should be developed to inform a set of preceptor training guidelines which could provide a framework for preceptor training programs across Australia. Consideration could also be given to the development of a national preceptor training program for Australia.

Recent interest has focused on preceptor competency standards for health professionals, including pharmacist preceptors. Competency standards for preceptors are a way of providing guidance to both preceptors and academic staff on the ideal knowledge, skills and attributes that are required for optimal precepting performance.¹⁶⁻¹⁸ Adherence to these standards should result in improved consistency of precepting and consequently lead to a better student placement experience, in addition to ensuring that preceptors are fulfilling their professional responsibilities. An Australian study is currently investigating competency standards for health professional preceptors, with the aim of creating a set of standards for Australia.¹⁶ Pharmacy specific competencies and performance indicators may be applied to preceptor recruitment, training and assessment,²² and could form the basis for a set of training guidelines for Australian pharmacist preceptors.

Australia has many similarities to Canada, in terms of population distribution, size and healthcare systems. In Canada, the Canadian Experiential Education Project for Pharmacy (CanExEd) has resulted in the development of a preceptor competency framework for pharmacist preceptors which has been used to inform a prototype for an online national preceptor development program for pharmacists in Canada.^{18,19} In 2005, Marriott et al developed a pharmacist preceptor training program for a group of Australian Universities, focusing on rural preceptors. Their aim was to establish a national preceptor education and support strategy. However, while the program was

used to inform an Australian multidisciplinary clinical educator program in 2007, it has not to our knowledge been progressed into a national program for pharmacist preceptors.^{11,20} Therefore, with the development of this evidence-based program at JCU, there is potential for collaboration with other universities and the Australian Pharmacy Council to again consider a national program for all Australian pharmacist preceptors. The advantages of developing a national program would include an improvement in training efficiency, using pooled resources and a consistent framework, backed by a set of Australia-wide competency standards. If appropriately developed, this should also be able to cater for the individual needs of a wide range of preceptors in terms of their different roles, placement sites and level of experience.^{2,21}

Recommendation 4

Preceptor training program design should encourage communication and collaboration between the university and preceptors. Adequate university resources and incentives for preceptors should be available to support the delivery of preceptor training.

Preceptors play a vital role in the undergraduate curriculum by guiding and developing students in the practice. They are not paid for precepting, and their contribution is often under-recognised and under-valued.²²⁻²⁴ A study of preceptor orientation and development programs in the US in 2020 found that many pharmacy schools did not provide sufficient orientation for their preceptors and that funding for preceptor development was often considered inadequate.²⁵ It is essential that universities continue to support preceptors in their role and promote a culture of inclusion and mutual respect.¹⁶ Based on the results of this study, this would include acknowledgement for their important role in student development and enabling preceptors to provide input into the pharmacy program. Increased preceptor involvement in the pharmacy curriculum will strengthen the link between theory and practice and ensuring a smooth transition for students from the university to the placement.²⁴ Additionally, the provision of preceptor training should be consistent with the requirements of the accrediting bodies and should be accompanied by adequate university support, resources and incentives.^{25,26} Incentives for preceptor training may include credentialing from regulatory bodies for completion of a preceptor development program and access to university library resources.²⁵ Preceptors involved in this study reported that allowing them to accumulate continuing professional development (CPD) points for attending preceptor training would provide a strong incentive for program participation. While some Australian universities, including JCU, are not currently accredited to provide CPD points for pharmacists,²⁷ this may be a future consideration.

Recommendation 5

Future training programs should be evaluated, as in this program, from the perspective of both preceptors and students.

There are a limited number of training program evaluations documented in the literature, with most evaluations considering only the perspective of the preceptor.^{3,28-33} Therefore, it is recommended initially that further research be conducted to expand the knowledge base around pharmacist preceptor training program evaluations. The positive results for the student evaluation of the preceptor in this study are encouraging, however, given the paucity of studies which have investigated the student perspective of preceptor training,³⁴ it is also recommended that future studies of preceptor training programs include both preceptor and student evaluations. It is recognized that there are inherent difficulties in obtaining student perspectives on preceptor performance, which need to be considered when designing program evaluations. As students are providing feedback on their preceptor at different stages in their development, as well as attending a diverse range of placements, there can be considerable variability in individual student evaluations over time.³⁴ Therefore, the design of student evaluations needs to be carefully considered to ensure the accuracy and reliability of the findings.

Recommendation 6

Future program evaluations should aim to determine the nature of a link between preceptor training and student performance.

The overall role of a preceptor is to guide the student and allow them to develop their professional skills as well as their values and attitudes.³⁵ It has been shown in this study that preceptor training can improve preceptor performance, from the perspective of both the preceptor and the student. However, with the aim of preceptor training being to produce high quality pharmacy graduates, future evaluations should also consider student performance outcomes. Therefore, program evaluations should aim to not only identify improvements in preceptor performance but also to determine the nature of a link between preceptor training and the performance of the student. Furthermore, future Australian evaluations should also be compared to ensure the consistency and relevance of these studies across the nation.

While this study has contributed to the expanding literature on preceptor training programs, there are several limitations to consider. As the study was conducted at a single university, it should be acknowledged that the findings of the needs analysis may not be representative of the wider population of students, preceptors and academic staff. Furthermore, with JCU being a small regional university, low participant numbers may have also limited the reliability of the data.

The strengths of the study include the use of mixed methods, which provided both breadth and depth of data, and the participatory approach to program design, which allowed for input from a wide range of stakeholders in preceptor development. Another strength is the broad nature of the program evaluation, being a mixed methods study investigating perceptions of both preceptor and student participants.

Through the successful design, delivery and evaluation of this program, the aim and objectives of this study have been achieved, with the resulting program being tailored to the needs of JCU community pharmacy preceptors. The participatory approach to the program design, involving a range of key stakeholders, has contributed to the positive feedback received on training, confirming that the program has met the current needs of the preceptors, in addition to improving their attitudes, practices and confidence levels. Additionally, the improvement in post-training preceptor behaviour, as identified by the student evaluations, has indicated that preceptor training can improve preceptor communication skills and promote a better student placement experience. This study has therefore been effective in highlighting the benefits of training and support for community pharmacy preceptors, to optimize student placement experiences and ensure the high quality of pharmacy graduates.

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Appendices

- Appendix A Needs Analysis – Preceptor Survey
- Appendix B Needs Analysis – Preceptor Interview Guide
- Appendix C Needs Analysis – Student Survey
- Appendix D Needs Analysis – Student Focus Group Guide – Years 3 and 4
- Appendix E Needs Analysis – Student Focus Group Guide – Year 2
- Appendix F Needs Analysis – Academic Staff Interview Guide
- Appendix G Preceptor Post-Training Survey
- Appendix H Preceptor Post-Training Interview Guide
- Appendix I Student Evaluation of the Preceptor Survey
- Appendix J James Cook University Ethics Approval Certificate

Appendix A Needs Analysis – Preceptor Survey

Informed consent – by completing and submitting this survey, consent to participate is implied.

I consent to completing a survey

A. Demographics

1. Gender Male Female Prefer not to say

2. Qualifications

3. From which university did you graduate from your pharmacy degree?

4. For how many years have you been practising as a registered pharmacist?

< 2yrs 2-5 yrs 5-15 yrs 16-25yrs > 25yrs

5. Current practice setting

6. On average, how many pharmacists work in your pharmacist at any one time?

Only 1 1 to 2 3 to 4 more than 4

7. What is the location of your practice?

Large City Regional City Rural/remote town

Postcode of your practice

B. Preceptor experience

1. For how many years have you been a preceptor?

< 1 yr 1-2 yrs 3-5 yrs > 5 yrs N/A

2. Approximately how many students/interns have you supervised to date?

Students	1-10	<input type="checkbox"/>	11-20	<input type="checkbox"/>	> 20	<input type="checkbox"/>	None	<input type="checkbox"/>
Interns	1-5	<input type="checkbox"/>	6-10	<input type="checkbox"/>	> 10	<input type="checkbox"/>	None	<input type="checkbox"/>

3. Is this the first time you have undertaken any preceptor training?

Yes No

If you answered NO, describe your previous preceptor training

.....

4. What would be the average time spent with each student/intern per day?

< 1hr 1 to 3hrs 4 to 6 hrs > 6hrs N/A

C. Attitudes

1. How important do you consider the following personal qualities and generic skills of a preceptor?

Very important important moderately important slightly important unimportant

- An interest, desire and enthusiasm to precept
- Effective communication and counselling skills
- Effective organizational and time management skills
- Effective student engagement
- Knowledgeable in their field of practice
- Able to manage unmotivated or poorly performing students
- Able to manage student conflict
- Familiar with the Pharmacy curriculum
- Uses effective teaching strategies
- Assesses and understands student needs
- Encourages reflection, critical thinking and problem solving
- Promotes life-long learning
- Unbiased student assessor
- Provides constructive student feedback
- Provides realistic academic staff feedback on student performance
- Use online technology effectively for teaching and assessment

2. List any other skills and attributes which you feel would be important for a pharmacy preceptor, giving reasons.

Please explain

3. How many hours per week do you believe you should spend supervising a placement student?

Student < 1hr 1 to 3hrs 3-6 hrs > 6 hrs

Intern < 1hr 1 to 3hrs 3-6 hrs > 6hrs

4. For how many years do you think that a pharmacist should be registered prior to becoming a preceptor?

1 year 2 years 3 years Other

5. In your opinion, which of the following factors are barriers to effective precepting? (more than one can be chosen)

Lack of time Lack of site capacity

Lack of remuneration Lack of training

Other

D. Practices

In your role as a preceptor, rate your confidence levels in the following areas:

Very confident Confident Somewhat confident Not confident

- Communicating effectively with students
- Answering student questions clearly and in a timely manner
- Demonstrating effective patient counselling
- Demonstrating clinical decision making and evidence based practice
- Promoting continuing professional development
- Being available for the student
- Displaying interest in the student
- Engaging students
- Clarifying placement expectations with students
- Identifying and managing at-risk or problem students
- Managing conflict involving a student
- Using effective strategies to teach students
- Providing clear explanations

- Understanding and assessing student needs
- Adjusting teaching style to suit students
- Encouraging student autonomy appropriate to level of experience/competence
- Promoting critical thinking and problem solving ability in the student
- Monitoring and appropriately assessing student learning
- Providing regular and constructive student feedback
- Providing timely student feedback
- Discussing poor feedback with students
- Providing appropriate feedback to academic staff on student performance
- Using online technology for teaching and learning
- Using online technology for student assessment and feedback

Please add any additional comments about preceptor abilities?

.....

E. Preceptor training preferences

1. In what format would you prefer to undertake preceptor training?

Online Face-to-face Combination on-line and face-to-face

Other

2. How frequently should training be offered?

Yearly twice yearly every 2 years every 3 years

Other

3. Below is a list of potential content areas for training. Please indicate how important each topic would be for you.

Very important Important Moderately important Slightly important Unimportant

- Structure of the JCU curriculum
- Clarification of preceptor roles and responsibilities
- Teaching methods
- Student feedback and assessment
- Engaging and motivating students
- Time management – effectively precepting while meeting employer responsibilities
- Identifying factors that may affect student performance
- Dealing with unmotivated or poorly performing students

Are there any other content areas which you believe are important to cover in a preceptor training program? Please explain.

.....

4. Do you think that preceptor training should be compulsory?

Yes No Maybe

Comments

5. If preceptor training was not compulsory, how likely would you be to participate?

very likely likely somewhat likely not likely

F. Preceptor Support

1. How would you rate the current level of support provided by James Cook University to you as preceptors?

Poor Average Good Very Good Excellent

I have never been a preceptor

2. How important would you consider the following measures as additional support for effective tutoring?

Very important important moderately important slightly important unimportant

- Access to university databases and pharmacy resources
- Acknowledgement for preceptor time
e.g. CPD points, certificates of appreciation, awards for outstanding preceptors
invitations to faculty dinners, meet the preceptor nights

Comments.....

- Inclusion of preceptors in university activities
e.g. in teaching, lunchtime learning lectures, admission interviews or other similar activities.

Comments

- An increase in placement time periods to ensure that preceptors had sufficient time to be familiar with the students
- Online network or social media site for preceptors

List any other support measures which you feel would be useful for pharmacy preceptors

.....

Additional Comments

Please add any additional comments you have about preceptor training below.

.....
.....

Thank-you for your time

Appendix B Needs Analysis – Preceptor Interview Guide

Good morning/afternoon

Thank-you for agreeing to be interviewed today. My name is Gillian Knott and I am the principle researcher and also a lecturer here at JCU.

The purpose of this project is to design develop and deliver a pharmacist preceptor training program for JCU. We would like to ask your opinions on the role of pharmacist preceptors and the optimal training and support requirements. You will have already completed an online questionnaire. This interview is therefore to obtain more detail on the information that you have already provided.

- This interview will be audiotaped so that we can review your responses and avoid missing any details of our conversation.
- Participation is entirely voluntary and there is no obligation for you to answer any questions that you feel uncomfortable with. If you are not comfortable with the questions, you are free to stop at any time and we will not be offended.
- There are 4 main questions and we anticipate that this interview will take no longer than 15 minutes.

Do you have any questions before we begin?

Do you consent to be interviewed today?

Question 1. What do you think are the primary roles of a pharmacy preceptor?

Prompts:

Role model - demonstrate good clinical and counselling skills, CPD

Socialiser - student guidance, support, motivation
- Identify student needs, at-risk students
- clarify placement expectations
- manage student conflict

Educator - teach students
- explain things clearly
- Encourage self-directed learning, critical thinking, problem solving

Assessor - Provide assessment
- Give feedback – verbal and written
- Discuss poor feedback

Question 2. What do you think are the important personal skills or attributes of a good pharmacy preceptor?

Prompts:

Good communication, organization, time management?

Good teaching skills

Able to effectively assess and provide feedback

Question 3. What are the enablers and barriers to good precepting?

Prompts:

Enablers – training, support from institution, good clarification of role

Longer placements??

Barriers – time, workload, site capacity, lack of remuneration

Question 4. Training preferences and requirements

How do you feel about the current level of support provided by JCU to preceptors?

What method of training would you prefer? (Online, face-to-face, combination?)

How frequently?

Should training be compulsory?

What areas of content should be included in a preceptor training program?

e.g. teaching skills, time management, student assessment and feedback

What support measures would be important for pharmacist preceptors?

e.g. access to databases, acknowledgement for their time and effort, networking facilities, inclusion in school activities

This concludes the interview. Thank-you for your time and input into this study.

Appendix C Needs Analysis – Student Survey

Informed consent – by completing and submitting this survey, consent to participate in the survey is implied.

I consent to completing a survey

A. Demographics

1. Age: < 19 yrs 20 to 22yrs 23 to 30yrs > 30yrs

2. Gender Male Female Prefer not to say

3. Year level Year 2 Year 3 Year 4

4. In what areas of pharmacy practice have you had previous placement experience?
(please tick all those that apply)

Community Pharmacy Hospital Pharmacy Rural/Remote Pharmacy

Other

B. Preceptor Attributes

Rate the importance of the following skills or attributes of pharmacy preceptors.

Very important Important Somewhat important Not important Unsure

- Enthusiastic and supportive of the student
- Effective communication and counselling skills

- Effective organizational and time management skills
- Effective student engagement
- Knowledgeable in their field of practice
- Able to monitor and manage student performance
- Able to manage student conflict
- Familiar with the current Pharmacy curriculum
- Effective teacher – facilitates learning
- Understands student needs
- Encourages reflection, critical thinking and problem solving
- Promotes life-long learning
- Unbiased assessor
- Provides constructive feedback
- Effective use of online technology for teaching and assessment

List any other skills which you feel would be important for a pharmacy preceptor.

.....

C. Preceptor Roles

Rate the importance of the following roles for pharmacy preceptors

Very important Important Somewhat important Not important Unsure

- Acting as a role model
- Able to communicate effectively with students
- Answering student questions clearly in a timely manner

- Linking theory to practice
- Demonstrating good clinical decision making and evidence based practice
- Promoting continuing professional development
- Being available for students
- Displaying interest in students
- Engaging students
- Clarifying placement expectations
- Managing student conflict
- Providing career advice
- Using effective teaching methods
- Providing clear explanations
- Understanding student educational needs
- Supporting independent student learning
- Meeting JCU student educational expectations
- Monitoring and appropriately assessing students
- Providing realistic and unbiased assessment
- Providing timely student feedback
- Providing appropriate student feedback on assessment

List any other roles of preceptors that you feel are important

.....

D. Additional comments about preceptors

Please add any additional comments you may have about preceptors below:

.....

.....

Thank-you for your time

Appendix D Needs Analysis – Student Focus Group Guide - Years 3 and 4

Good morning/afternoon

Thank-you for coming today and being involved in this focus group

My name is Gillian (Knott) and I am the principle researcher. I am a lecturer in Pharmacy at JCU. This project aims to design, deliver and evaluate a training and support program for pharmacist preceptors. You will have already completed an online survey questionnaire about this project. The aim of this focus group will be to explore in more detail your opinions on the role of the preceptor and how we can enhance the effectiveness of our preceptors and therefore improve the quality of your placement experience.

- This interview will be audiotaped so that we can review your responses and avoid missing any details of our conversation.
- Participation is entirely voluntary and there is no obligation for you to answer any questions that you feel uncomfortable with. If you are not comfortable with the questions, you are free to stop at any time and we will not be offended.
- There are 4 main questions and we anticipate that this interview will take no longer than one hour.

1. Can you describe your past experiences with preceptors?

Prompts - These can be good or bad experiences

What were the positive experiences?

Did you find your preceptors helpful? Supportive? Confident?

Do you find that they explain things well?

Did they provide good feedback?

Were your preceptors enthusiastic? Did they motivate you?

What were the negative experiences?

2. What do you feel are the important roles of the pharmacy preceptor?

Prompts

Role model - dispensing and counselling, communication skills, dedication to CPD

Mentor - Able to guide the students, clarify expectations of the Uni and the profession

Managing unmotivated students, Managing student conflict, identifying at-risk students

Educator - Teaching strategies, clear explanations, providing autonomy, understanding student needs, enabling critical thinking and problem solving

Assessor - Monitoring progress, providing feedback (constructive and timely), dealing with poor feedback, feedback to academic staff

Are there any other roles for preceptors that you feel would be important?

3. What attributes and skills would you like your preceptors to ideally have?

Prompts: Good knowledge and clinical skills

Good communicator

Organised

Supportive, motivating, enthusiastic, engaging, approachable

Good teacher, good role model

Understands the student and the curriculum

Assesses fairly and realistically, honestly

Can provide good feedback

4. Do you have any suggestions on how we could improve your interactions with preceptors to enhance your placement experience?

Prompts

Explain JCU student expectations and requirements

Advise on the current level of the student when organizing placement

Allowing students more autonomy? Involve the student rather than just observing

Provide realistic experiences

Explain assessment requirements clearly

5. Do you have any additional comments about preceptors?

That concludes this focus group. We appreciate your time and contribution to this project.

Appendix E Needs Analysis – Student Focus Group Guide – Year 2

Good morning/afternoon

Thank-you for coming today and being involved in this focus group

My name is Gillian (Knott) and I am the principle researcher. I am a lecturer in Pharmacy at JCU. This project aims to design, deliver and evaluate a training and support program for pharmacist preceptors. You will have already completed an online survey questionnaire about this project. The aim of this focus group will be to explore in more detail your opinions on the role of the preceptor and how we use preceptors to enhance the effectiveness of your placement experience.

- This interview will be audiotaped so that we can review your responses and avoid missing any details of our conversation.
- Participation is entirely voluntary and there is no obligation for you to answer any questions that you feel uncomfortable with. If you are not comfortable with the questions, you are free to stop at any time and we will not be offended.
- All information you give will be kept strictly confidential and no names will be used to identify you in this study without your approval.
- There are 4 main questions and we anticipate that this interview will take no longer than one hour.

A preceptor is defined as a practising pharmacist who guides pharmacy students during their experiential placements. We use these placements to assist in the development of your professional knowledge, skills and attitudes.

1. *You are just about to undertake your first experiential placement – this is an observational placement where your pharmacist preceptor will provide information and advice as you observe pharmacists at work.
In Year 3, you will be able to participate more fully in the placement experience and your preceptors will play a more prominent role.*

Based on what you already know about placements, what do you feel are the important roles of the pharmacy preceptor?

Prompts

Role model - dispensing and counselling, communication skills, dedication to CPD

Mentor - able to guide the students, clarify expectations of the Uni and the profession

Managing unmotivated students, managing student conflict, identifying at-risk students

Educator - Teaching strategies, clear explanations, providing autonomy, understanding student needs, enabling critical thinking and problem solving

Assessor- monitoring progress, providing feedback (constructive and timely), dealing with poor feedback, feedback to academic staff

Are there any other roles for preceptors that you feel would be important?

2. What attributes and skills would you like your preceptors to ideally have?

Prompts: Good knowledge and clinical skills
 Good communicator
 Organised
 Supportive, motivating, enthusiastic, engaging, approachable
 Good teacher, good role model
 Understands the student and the curriculum
 Assesses fairly and realistically, honestly
 Can provide good feedback

3. (students may not need this question) Have you had any previous experience with pharmacist preceptors? If so, can you describe your experiences.

Prompts - These can be good or bad experiences

What were the positive experiences?

Did you find your preceptors helpful? Supportive? Confident?

Do you find that they explain things well?

Did they provide good feedback?

Were your preceptors enthusiastic?

Did they motivate you?

What were the negative experiences?

4. Do you have any suggestions on how we can enhance your interactions with preceptors to optimize your placement experience?

Prompts

Explain JCU student expectations and requirements

Advise on the current level of the student when organizing placement

Allowing students more autonomy? Involve the student rather than just observing

Provide realistic experiences

Explain assessment requirements clearly

Do you have any additional comments about preceptors?

That concludes this focus group. We appreciate your time and contribution to this project

Appendix F Needs Analysis – Academic Staff Interview Guide

Good morning/afternoon

Thank-you for agreeing to be interviewed today. My name is Gillian Knott and I am the principle researcher for this project and also a lecturer here at JCU.

The purpose of this project is to design develop and deliver a pharmacist preceptor training program for JCU. We would like to ascertain your opinions on the role of pharmacist preceptors and how we can best train and support them in their role.

- This interview will be audiotaped so that we can review your responses and avoid missing any details of our conversation.
- Participation is entirely voluntary and there is no obligation for you to answer any questions that you feel uncomfortable with. If you are not comfortable with the questions, you are free to stop at any time and we will not be offended.
- There are 4 main questions and we anticipate that this interview will take no longer than 15 minutes.

Do you have any questions before we begin?

Do you consent to be interviewed today? Are you happy for me to start recording now?

Question 1 What do you think are the important roles of the pharmacy preceptor?

Prompts

Role model - dispensing and counselling, communication skills, dedication to CPD

Mentor - able to guide the students, clarify expectations of the Uni and the profession

Managing unmotivated students, Managing student conflict, identifying at-risk students

Educator - Teaching strategies, clear explanations, providing autonomy, understanding student needs, enabling critical thinking and problem solving

Assessor - monitoring progress, providing feedback (constructive and timely), dealing with poor feedback, feedback to academic staff

Question 2 What skills and attributes do you think are important for a pharmacist to be an effective preceptor?

eg. Knowledgeable, professional

Enthusiastic and dedicated

well organized,
a good teacher,
a fair assessor,
a good communicator

Question 3 *What do you think would be the best way to train pharmacist preceptors?*

What format would be best? Online, face-to-face?

How often? e.g. Yearly, 2 yearly? Should training be compulsory?

What do they need to know? (important content areas)

eg. teaching skills,
feedback & assessment,
time management,
engaging and motivating students?
Managing poor performers
University requirements and expectations

Question 4 *What support measures do you feel are important for pharmacist preceptors at this university?*

e.g
access to databases, acknowledgement for their time
involvement in the pharmacy school, online networking facilities

Question 5 *What do you see as the advantages of preceptor training?*

Consistency of information
Improved understanding of student requirements
Improved teaching ability

What do you think are the barriers to effective precepting?

Time, Site capacity, Lack of remuneration

That concludes this interview – thank-you for your time today and your valuable contribution to this research project.

Appendix G Preceptor Post-training Survey

JAMES COOK UNIVERSITY

PHARMACIST PRECEPTOR TRAINING PROGRAM 2022 – Feedback Evaluation Survey

1. The information covered in this training program was relevant to my current needs

Strongly Agree Agree Neutral Disagree Strongly Disagree

Comments.....
.....

2. The training program provided adequate depth of information for my current needs

Strongly Agree Agree Neutral Disagree Strongly Disagree

Comments.....
.....

3. The format of the training program was appropriate and convenient for me

Strongly Agree Agree Neutral Disagree Strongly Disagree

Comments
.....

4. Please comment on the usefulness of the following areas of this training program:

Please tick the table below where appropriate √

Program area	Excellent	Good	Fair	Poor	Very poor
Overview of the JCU Pharmacy curriculum and Placement program					
MODULE 1 – Preceptor roles and the preceptor as a Role Model					
MODULE 2 – The Preceptor as an Educator					
MODULE 3 – The Preceptor as an Assessor					
MODULE 4 – The Preceptor as a Mentor					
Preceptor small-group interactive session					
OVERALL Program					

5. Please comment on the best aspects of this training program:

.....

.....

.....

.....

6. Please comment on suggested improvements to this training program:

.....

.....

.....

.....

7. Your previous precepting experience

For how many years have you been a preceptor?

< 1 yr 1-2 yrs 3-5 yrs > 5 yrs N/A

Approximately how many students/interns have you supervised to date?

Students < 5 5-10 > 10

Interns < 5 5-10 > 10

Is this the first time you have undertaken any preceptor training?

Yes No

If you answered NO, describe your previous preceptor training

.....
.....

Thank you for your time

Your feedback is appreciated

Appendix H Preceptor Post-training Interview Guide

Good morning/afternoon

Thank-you for agreeing to be interviewed today. My name is Gillian Knott and I am the principal researcher and also a lecturer here at JCU.

Thank-you for participating in the JCU Pharmacy Preceptor Training Program. You will have already completed a post-training survey of this program.

The purpose of this interview is to ask you whether, after having a post-training placement student (for JB and VL, an INTERN pharmacist), this program has made a difference to you in your role as a preceptor of JCU pharmacy students.

- This interview will be audiotaped so that we can review your responses and avoid missing any details of our conversation.
- Participation is entirely voluntary and there is no obligation for you to answer any questions that you feel uncomfortable with. If you are not comfortable, you are free to stop at any time and we will not be offended.
- There are 4 main questions, and we anticipate that this interview will take no longer than 20 minutes.

Do you have any questions before we begin? Do you consent to be interviewed today? Do you consent for this interview to be audiotaped?

Question 1. Can you comment on any challenges that you experienced as a preceptor in supervising your last placement student? (or INTERN student)

Prompts

Any problems with motivation? behaviour? professionalism?

Did you have problems with time management?

Question 2. Can you comment on how preceptor training in general has impacted on you in your role as a pharmacist preceptor.

Prompts

Do you feel that there are any particular areas of precepting where the program has helped you?

e.g. did you find it easier to:

Orientate your student and set expectations

Changes to your teaching methods? e.g. one minute preceptor

Changes to the way you provide feedback e.g. pendleton

Manage students

Deal with lack of motivation, unprofessional behaviour?

complete your preceptor evaluation (if a placement student)

Question 3. After having a student, do you know of any additional topics or support measures that you feel should be included in future preceptor training programs?

Question 4. Do you feel that your confidence levels as a preceptor have improved during your last placement as a result of participating in the preceptor training?

Prompts

Role Model

- *Communicating effectively with students and demonstrating effective patient counselling*
- *Answering student questions clearly and in a timely manner*
- *Demonstrating clinical decision making and evidence-based practice*
- *Promoting continuing professional development*

Mentor

- *Being available for the student and displaying interest in the student*
- *Engaging students*
- *Clarifying placement expectations with students*
- *Identifying and managing at-risk or problem students, managing conflict*

Educator

- *Using effective strategies to teach students*
- *Providing clear explanations*
- *Understanding and assessing student needs*
- *Adjusting teaching style to suit students*
- *Providing student autonomy appropriate to level of experience/competence*
- *Promoting critical thinking and problem-solving ability in the student*

Assessor

- *Monitoring and appropriately assessing student learning*
- *Providing regular, constructive, timely student feedback*

- *Discussing poor feedback with students*
- *Providing appropriate feedback to academic staff on student performance*

Question 5 – just some background on your previous precepting experience

For how many years have you been a preceptor?

Approximately how many students/interns have you supervised?

Was this the first preceptor training program that you have attended?

That concludes this interview. Thank-you for your time and contribution to this project.

Appendix I Student Evaluation of the Preceptor Survey

James Cook University – Student Evaluation of the Preceptor

Has your preceptor participated in the online JCU Pharmacy Preceptor Training Program which was conducted in June-July 2022.

Yes

No

Please indicate whether your placement experience was in a hospital pharmacy, community pharmacy or other.

Hospital Pharmacy

Community Pharmacy

Mixed hospital/community pharmacy

Other

How many preceptors did you have over the course of your placement?

Just one preceptor

Two preceptors

More than two preceptors

Rate your preceptor in the following areas:

Excellent

Good

Fair

Poor

Very Poor

1. My preceptor was enthusiastic and engaged with me
2. My preceptor was an effective communicator
3. My preceptor was sufficiently available for me
4. My preceptor answered my questions clearly and in a timely manner

5. My preceptor demonstrated effective patient counselling and clinical decision making
6. My preceptor promoted evidence based practice and continuing professional development
7. My preceptor clarified their expectations of me during placement
8. My preceptor understood my needs as a student
9. My preceptor understood the educational requirements of JCU Pharmacy
10. My preceptor was an effective teacher
11. My preceptor was able to adjust their teaching style to suit my needs
12. My preceptor provided me with autonomy that was appropriate to my level of experience/competence.
13. My preceptor promoted my critical thinking and problems solving ability
14. My preceptor was able to manage any conflict during my placement
15. My preceptor assessed my learning appropriately and fairly
16. My preceptor provided timely, regular and constructive feedback to me
17. My preceptor was comfortable in providing any poor feedback to me
18. My preceptor used online technology effectively when assessing me and providing feedback.

Please include any additional comments you may have about your preceptor in the box below – this may include both positive and negative comments.

.....

.....

End of survey

This administrative form
has been removed