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PERCEPTIONS OF PHARMACY STUDENTS AND CLINICAL PRECEPTORS ON FEEDBACK DURING EXPERIENTIAL LEARNING

BY

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ABSTRACT

ALKHIYAMI, DANIA, I., Masters of Science: June : [2024:], Health Professions Education

Title: Perceptions of Pharmacy Students and Clinical Preceptors on Feedback During Experiential Learning: A Qualitative Study

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Exploring the perspectives of pharmacy students and preceptors on feedback during experiential learning in Qatar is crucial to understanding their experiences and identifying the perceived facilitators and barriers. This Master's thesis employed a scoping review and qualitative interviews to examine students' perceptions of feedback and its impact on experiential learning. The scoping review included 13 studies, revealing that feedback for pharmacy students' experiential learning is most effective when it is timely, goal-oriented, objective, and student-specific, while overly positive feedback and lack of constructive criticism were common impediments. Four main themes emerged from the qualitative study: facets of preceptorship in experiential learning, effective feedback strategies, perceived barriers and facilitators of effective feedback, and proposed strategies to improve feedback provision in experiential learning. Overall, these results have implications for designing and implementing preceptor training programs and feedback processes within pharmacy education, creating enriching experiential learning experiences for students. Future research should explore the different perspectives between hospital and community settings to understand each site's challenges and address them to enhance the experiential learning experience.

DEDICATION

I dedicate this thesis to my support system—my family. To my parents, whose sacrifices and boundless love have shaped my aspirations and ambitions. To my husband, whose encouragement and understanding have been my pillars of strength throughout this academic journey. To my brothers and sister, for their support and belief in my abilities. This achievement is as much yours as it is mine, and I am forever grateful for the love, guidance, and motivation you have provided me in achieving this academic milestone.

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"I would like to acknowledge the support of Qatar University and my supervisors, Dr. Muhammad Abdul Hadi and Dr. Ahsan Sethi, for providing all the necessary resources to achieve the requirements of my Master's degree. Also, I would like to thank Dr. Rasha Al Anany and Dr. Palli Abdul Rouf for their encouragement and support. "

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CHAPTER 1: INTRODUCTION

This chapter provides an introduction to experiential learning and reviews the literature on experiential learning. First, the history of experiential learning in pharmacy education is briefly described followed by the relevant literature regarding feedback definition and its importance in experiential learning.

Experiential learning is a significant component of health professionals' education (Yardley, Teunissen, & Dornan, 2012). Experiential training, referred to as "workplace-based training," "clerkship," "residency," and "internship," is a fundamental element of health professional programs. It allows students to reinforce their knowledge and skills under the guidance of clinical preceptors. In pharmacy education, experiential learning courses offer real-life experiences within the pharmacy curriculum (Wilbur, Wilby, & Pawluk, 2018). Experiential learning courses include specific learning objectives and outcomes with assigned tasks that focus on student application of knowledge and skills in a real-world pharmacy practice setting supervised by a licensed and practicing pharmacist (preceptor) for a defined period. (Hall, Musing, Miller, & Tisdale, 2012). A preceptor is a teacher, instructor, and coach who helps and guides the students to move from knowledge to application to integration in a practical training setting (Devine & Doty, 2012). Moreover, the main aim of experiential learning in the pharmacy curriculum is to develop professionally competent pharmacists (Scheckelhoff et al., 2008). This competence is not limited to skills and application of knowledge; it incorporates values, attitudes, confidence, ethics, and clinical judgment needed by each student to graduate as an independent and collaborative pharmacist to provide patient-focused care (Bohan, 2011). A

standardized evaluation form is used in each experiential learning course for preceptors to assess student achievement of the pre-specified outcomes and competencies. Preceptors are pharmacists selected and assigned by the college of pharmacy to supervise the pharmacy student and provide both formative and summative assessments of the learning activities for safe, direct patient care practice, all in addition to their regular tasks and duties (Yardley, et al., 2012). Administrators within colleges of pharmacy endeavor to meet and sustain high-quality assurance standards and preceptor development needs (Haltom et al., 2019). However, there are many challenges to ensuring an adequate number of preceptors while offering multiple experiential learning opportunities to pharmacy students (Skrabal et al., 2008). Nevertheless, it is sometimes difficult to ensure an adequate number of preceptors with appropriate qualifications and good teaching/precepting skills (Bengtsson & Carlson, 2015). Ideally, preceptors must share their knowledge with students, provide effective and constructive feedback about performance, and encourage reflection to enrich the learning experience for the student.

The term "feedback" originated in mechanical contexts, reflecting an auto-regulatory mechanism in which the consequences of an action are fed back to improve subsequent actions (Ramani et al., 2019). The term is used across different professions to evaluate performance and enhance professional practices. In recent decades, feedback in health professional education (HPE) has gained significant importance and attention, reflecting its increasing significance in education. Despite a lack of agreement regarding the definition of feedback, feedback in HPE is defined as "Specific information about the comparison between a trainee's observed performance and a standard, given with the intent to improve the trainee's performance ." (van den Berg, Admiraal, & Pilot, 2006). The definition of feedback changes over time as more

components are included with more recent publications, and this will be discussed in more detail in the feedback models. Feedback is a formative continuing information process that guides students to build on their knowledge, skills, and attitudes (Ende, 1983). This highlights the significance of feedback in pharmacy education and represents the need to shift from focusing only on summative evaluation to formative feedback. Ramani et al. referred to feedback as "a vital cog in the wheel of competency-based medical education." (Ramani et al., 2019). Cantillon et al. described feedback as "the cornerstone of effective clinical training." (Cantillon & Sargeant, 2008). However, implementing feedback is complex and requires a clear structure to be labeled as effective. Formative and ongoing feedback has a substantial impact on student learning. Without effective feedback about student performance, the student may not be aware that they need to sustain good actions and modify improper actions or behaviors (Steven et al., 2014). Providing feedback effectively is considered one of the core functions of precepting and a critical step in experiential learning (Wilkinson et al., 2013). There are substantial published studies in health care literature about the evaluation process, but relatively little is published and known about the feedback process. Feedback is a formative continuing process of nonjudgmental information that guides and helps students or learners build on their skills, attitudes, and goals (Burgess et al., 2020). Evaluation is an essential part of the learning process. However, there is a significant difference between feedback and evaluation, as explained by Ende et al., who argued that feedback delivers information but on the other hand the evaluation process confers judgment (Ende, 1983). Therefore, facilitating students to engage in feedback processes was found to reduce the emotional burden on both parties (preceptors and students), rendering different feedback models (Molloy et al., 2020). Other research has emphasized the value of treating feedback as a dynamic interaction between students

and their preceptors. This approach can have significant impact on transforming students' professional identity and improving their capacity for evaluative judgment (Molloy et al., 2020). A retrospective study was conducted to assess open-ended feedback regarding entrustable professional activities provided by preceptors to Doctor of Pharmacy students. It concluded that "subjective, preceptor-provided feedback can provide greater insight into the strengths and challenges of student pharmacists' progression on practice experiences" (P8) and that the study emphasized the need for conducting a deeper analysis of preceptor feedback using focus groups or interviews (Sjoquist et al., 2021). A scoping review by Bing-You et al. conducted on feedback for medical education learners found that feedback is an important component of medical education and that there is a need for more research on how to provide effective feedback to learners (Bing-You et al., 2017). The authors identified several key factors that can affect the effectiveness of feedback, including the timing, frequency, and content of feedback and the relationship between the feedback provider and recipient. They also noted that feedback should be tailored to the learner's individual needs and that learners should be encouraged to utilize feedback for self-reflection on their performance and to establish goals for improvement. This study focused mainly on medical students and residents (83%). Moreover, a recent scoping review (2021) found that the literature on pharmacy education feedback lacks depth beyond student perceptions. Furthermore, it stated that the effectiveness and quality of feedback are areas for future research (Nelson et al., 2021). In this review, the articles included learners in the final year of their pharmacy program; however, none of the studies examined the direct impact of feedback on learning. Thus, this qualitative study explores feedback based on feedback metatheories and an integrative feedback model, including five components: message, implementation, student, context, and agents

(MISCA) (Panadero & Lipnevich, 2022). The MISCA model facilitates a comprehensive exploration of all aspects of feedback. Each component plays an important role in understanding the dynamics of feedback processes. The Message component focuses on the content and delivery of feedback, examining its clarity, specificity, and relevance. Implementation involves analyzing how feedback is integrated into the learning process and the strategies for promoting its effectiveness. The Student component delves into individual characteristics, such as prior knowledge and motivation, to understand how they influence the reception and use of feedback. The context considers the broader environmental factors that shape feedback experiences, including the learning environment and cultural influences. Finally, the Agents component addresses the roles of various stakeholders, such as teachers, peers, and technology, in providing and receiving feedback. Considering these interrelated components, the integrative MISCA model offers a comprehensive approach to exploring the feedback process and its impact on student learning and performance. There are substantial published studies in various health disciplines and pharmacy literature about the evaluation process, but little is known about the feedback process. There is a scarcity of literature concerning feedback for pharmacy students during their experiential learning in Qatar.A study focusing on feedback processes in Canadian health professional programs was established in Qatar. Semi-structured interviews with program coordinators discussed written feedback and the authenticity of evaluations. The study concludes that there is a need for purposeful revision of the feedback processes in health professional programs in Qatar, considering cultural differences and preferences. The study also highlights the importance of understanding feedback preferences in cross-cultural contexts and the revision of feedback processes to ensure effective experiential training and quality assurance in healthcare education (Wilbur,

Mousa Bacha, & Abdelaziz, 2017). A study was conducted to determine the experiences and preferences of non-Western pharmacy students regarding feedback in workplace-based training in Qatar. This study highlighted the importance of understanding feedback practices in different cultural contexts, especially in cross-border medical education programs. The findings can be useful in developing effective feedback strategies that are culturally sensitive and relevant (Wilbur, BenSmail, & Ahkter, 2019). There is no standardized feedback process in Qatar; pharmacy preceptors are required to complete two written evaluations for each student at the midpoint and end of the rotation through a system called E*Value ("Preceptor and Student Responsibilities," n.d.).

1.1 Experiential Learning in Pharmacy Practice in Qatar.

Over the past few years, Qatar has made significant investments in enhancing its healthcare services and education. The College of Pharmacy (CPH) at Qatar University (QU) was established in 2007 and graduated its first patch in 2011. Its curriculum is accredited by the Canadian Council for Accreditation of Pharmacy Programs (CCAPP). The College of Pharmacy at QU is the first and only pharmacy degree program in Qatar. It provides degree programs, including a 5-year BSc (Pharmacy), Doctor of Pharmacy (PharmD), MSc (Pharm), and PhD in Health Sciences.

1.1.1 Experiential Learning during the Bachelor of Science in Pharmacy Program.

The experiential learning courses referred to as the Structured Practical Experiences in Pharmacy (SPEP) program in the BSc degree at QU include six

rotations; each rotation must involve at least four weeks (160 hours). The SPEP program is designed to provide students with a variety of placements in community pharmacies, primary health clinics, private and public hospitals, and the pharmaceutical industry. In addition to providing international elective rotations. The first and second SPEP rotations are offered in the summer semester following the second and third professional years, respectively. The last four rotations are offered in the fall semester of the fourth professional year. All BSc degree students must typically complete at least two hospitals, two communities, one primary health care, and one elective rotation.

1.1.2 Experiential Learning in the Doctor of Pharmacy Program.

The Doctor of Pharmacy (PharmD) Program at QU offers two study plans: a full-time and a part-time study plan. The full-time study plan is intended for BSc program graduates at Qatar University. The full-time PharmD program mainly consists of experiential learning, and students are required to complete 32 credit hours of experiential training and four credit hours of didactic coursework. PharmD students need to complete at least eight clinical rotations. The part-time study plan is intended for pharmacists with a BSc degree in pharmacy from a program outside Qatar. The part-time study plan is similar to the full-time plan but with the addition of 20 credit hours of bridge courses.

1.2 Study Statement

In this thesis, a combination of scoping review and qualitative interviews has been used to examine students' perceptions of feedback and its consequential impact on their experiential learning. This study aims to identify the key factors that influence the

effectiveness of feedback, including the dynamics between students and their preceptors. By identifying the facilitators and barriers to effective feedback, this research provides insights into how feedback processes can be optimized to support student learning.

1.3 Study Rationale

Pharmacy schools rely greatly on practice-based settings to provide experiential learning opportunities and guide students under conditions of real professional experience (Wilbur et al., 2018). The interactions between pharmacy students and preceptors are essential for learning because what students can do with guidance today will be able to perform by themselves in the future (Jackson, 2015). The concept of experiential learning is relevant to Vygotsky's zone of proximal development, as it defines the distance between the actual development level of an individual who cannot perform the task as an independent student and the level of potential development of an individual who could perform the task successfully under the guidance of a more experienced practitioner. (Vygotsky, 1978; Ambrose, 2010) Without the adequate support of a competent preceptor, learning would proceed, but it may not be appropriate without the application of effective feedback (Wilkinson et al., 2013). Therefore, it is important to explore the perspectives of pharmacy students and preceptors on the feedback provided during experiential learning in Qatar to describe their experience and identify the perceived facilitators or challenges. This will add value to Qatar and worldwide, as the number of pharmacy students and graduates is increasing, and it is important to sustain effective feedback and ensure quality in experiential learning.

1.4 Research Aim

The aim of the scoping reviewwas to explore the literature on feedback for pharmacy students during experiential learning, focusing on identifying the modes of feedback delivery, the challenges faced by pharmacy students during experiential learning, and the perceived impact of feedback on student learning outcomes.

This qualitative study aimed to explore students' and preceptors' perceptions of feedback within the context of experiential learning and identify the key factors that influence its effectiveness, offering insights into enhancing the feedback process for improved learning outcomes.

1.5 Structure of the Thesis

The thesis encompasses several chapters, each contributing to the overall exploration of the research topic. The first chapter, the Introduction, outlines the background, rationale, and objectives of the thesis. Following this is the Literature Review, which provides an overview of feedback models and experiential learning theories. The subsequent chapters include a scoping review, methodology, results, and discussion.

CHAPTER 2: LITERATURE REVIEW

This chapter provides an overview of the body of literature on feedback during experiential learning in pharmacy education. The following review presents the literature relevant to this thesis and is organized into three sections: feedback definitions, models, and experiential learning.

2.1 Feedback Models

Several structures have been suggested to outline different feedback models and theories by which feedback can foster effective performance and learning. A feedback model is a theoretical framework that describes providing information to students about their performance on a task to improve their learning. Feedback models provide an understanding of the components of feedback and how it impacts students' learning and performance. Lipnevich and Panadero (2021) reviewed 14 different feedback models in the field of education. This calls attention to using existing models in practical applications rather than looking for and developing new ones, as current models are underutilized in education. However, only some models can serve the same purpose, and their application differs depending on the teaching and instructional methods. Lipnevich and Panadero developed an integrative model around feedback with five components: the message, implementation, student, context, and agents (MISCA) model. I believe that the MISCA model serves the purpose of my thesis, as this integrative model describes different feedback elements and their impact. I am the first to use this model to explore the perspectives of pharmacy students and preceptors on the feedback provided during experiential learning. (Figure 1)

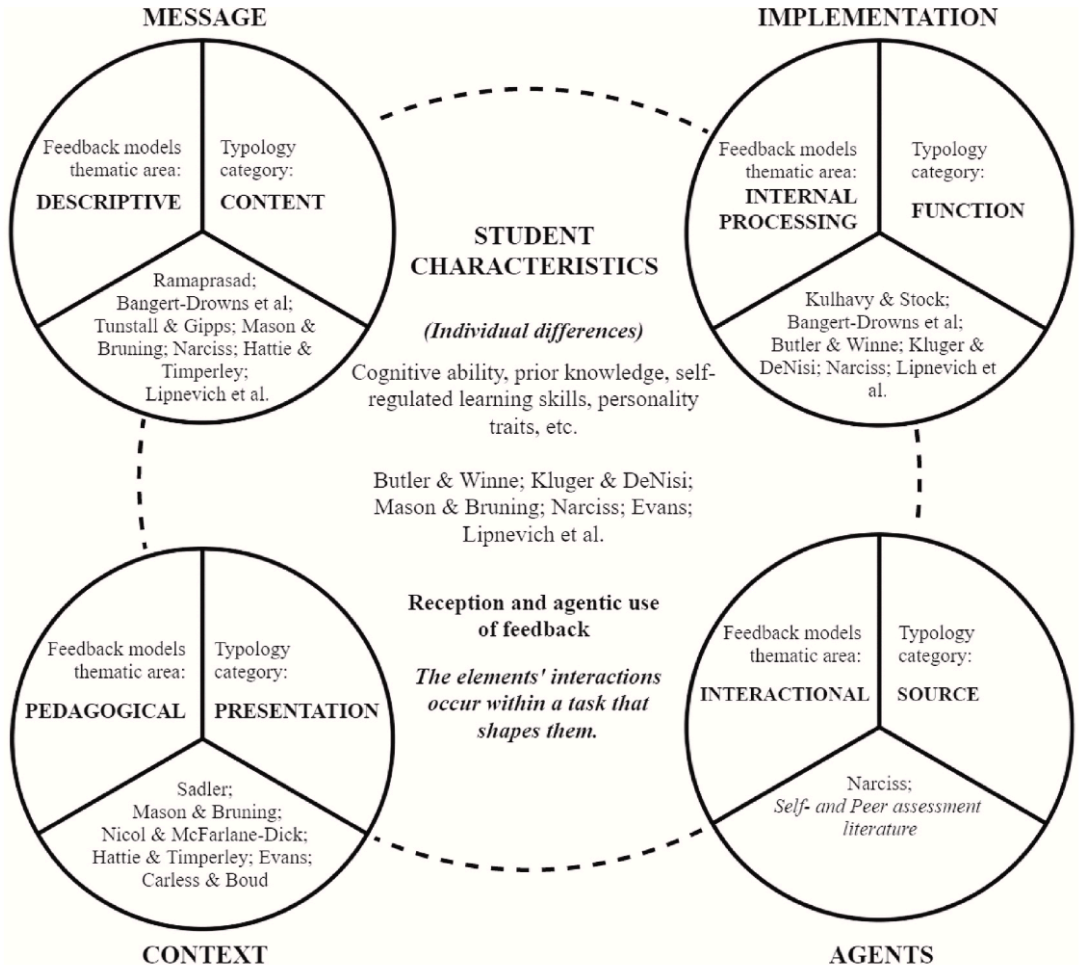

Figure 1. MISCA model adapted from (Panadero & Lipnevich, 2022).

2.2 Experiential Learning Theories

As this research explored the feedback provided expressly during experiential learning, it was essential to understand the theories of experiential learning. Many experiential learning theories are reinforced by constructivism theory, in which learners build their understanding of the real-world setting by processing their social engagement with others. Yardley et al. (2012) provided an overview of experiential learning theories, which state that experience is acquired during clinical workplaces

with the support of a preceptor. This highlights the significance of exploring the interaction between learners and preceptors, how feedback is provided, and its impact on the effectiveness of the experiential learning experience. Experiential learning can be experienced by learners with the support of a preceptor or mentor; however, there are better situations than this. Experiential learning theories can be divided into individual or cognitive learning theories, and sociocultural perspectives as collective learning theories. Cognitive learning theories focus on individual's cognitive structure and the transformation that occurs due to their reasoning (Hope et al., 2021). Dewey is one of the cognitive learning theories that describes involving students in real-life situations as the best way of learning. Another cognitive learning theory was proposed by Kolb, who believed that learning is achieved through experience. Kolb divided experiential learning into four stages: first, learners are exposed to the experience and then reflect on the learning experience to understand it. Afterward, the learners will identify and understand what they have learned and plan for future experiences. Finally, learners apply the knowledge and skills acquired from their experience to a new experience (Kolb, 1984). (Figure 2)

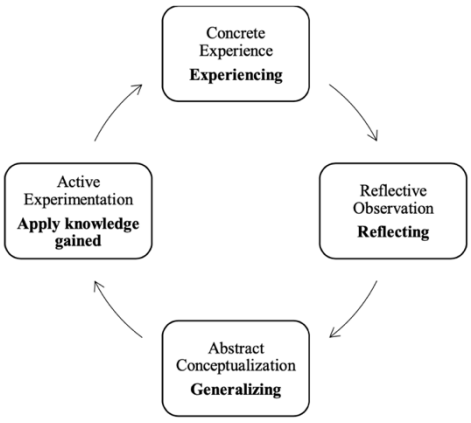

Figure 2. Kolb's cycle adapted from (Kolb, 1984).

Moreover, as Kolb emphasized, learners can only adequately and ideally achieve the four stages of experiential learning with a preceptor's support. Referring to this research and the focus on pharmacy students, this support would be the preceptor, as the learning might proceed, but the learning experience might only be valuable by providing the needed feedback. Therefore, sociocultural perspectives recognize learning as shared among others and not limited to a single individual within the workplace (Thomas et al., 2014). These theories are relevant to my research because experiential learning in pharmacy practice occurs in workplaces, either in the community, primary care clinic, or hospital setting. Interacting with the preceptors adds value to the student's development during experiential learning. Ideally, preceptors share their knowledge, skills, and experience with the student and provide feedback to the student to improve their performance. Vygotsky's zone of proximal development is a sociocultural perspective learning theory, as it considers social interaction as one of the pillars of learning. According to Vygotsky (1978), the preceptor's guidance is crucial for students transitioning from doing the tasks with assistance today to doing them themselves by providing effective feedback. (Figure 3)

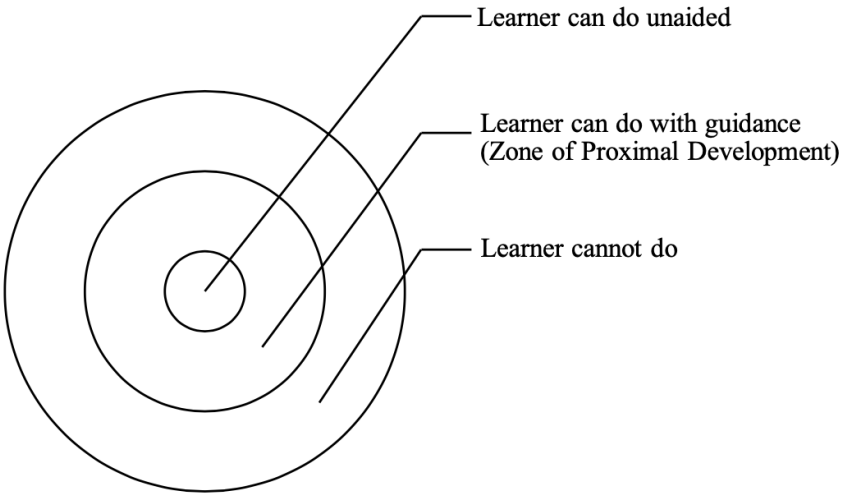

Figure 3. Vygotsky's zone of proximal development adapted from (Vygotsky, 1978).

2.3 Usefulnees of Experiential Learning in Health Professional Education

Experiential learning is recognized as a cornerstone of health professional education, providing students with opportunities to connect the theoretical knowledge learned in the classroom to practical skills and competencies in real-world clinical settings (Yardley et al.,2012). Experiential learning enables health professional students to develop clinical skills by actively participating in patient care activities under the supervision of experienced clinicians (Paravattil et al., 2021). Health professional students gain experience conducting physical examinations and performing diagnostic tests. They also learn to assess patient's clinical status and implement treatment plans to manage acute and chronic diseases. Experiential learning also promotes critical thinking and problem-solving skills among health professional students. Students learn to interpret complex situations and make informed clinical decisions through exposure to real-world clinical scenarios and patient cases. Furthermore, experiential learning is fundamental in developing interprofessional collaboration and competencies among health professional students by working with healthcare teams from diverse

backgrounds. This collaborative approach prepares students to work effectively as part of multidisciplinary healthcare teams and deliver patient-centered care in a collaborative and integrated manner (North et al., 2023). Moreover, experiential learning experiences contribute to developing core professional values, such as professional responsibility, providing compassionate care, integrity, and empathy. This hands-on experience enhances students' clinical competence and prepares them to deliver high-quality care to patients across various healthcare settings. In conclusion, experiential learning is integral to health professional education, providing students with hands-on opportunities to gain practical knowledge, enhance their clinical reasoning skills, and develop a strong sense of professional responsibility. Experiential learning prepares students for future work placement as highly competent health professionals.

2.4 Usefulnees of Experiential Learning in Pharmacy

Experiential learning in pharmacy education is crucial for fostering pharmacy professional competence, including values, skills, professional socialization, confidence, and clinical judgment (Sylvia & Barr, 2011). The pharmacy program at QU adheres to standards set by the Canadian Council for Accreditation of Pharmacy Programs (CCAPP) to maintain accreditation. CCAPP mandates experiential learning as an integral part of pharmacy program curricula (Canadian Council for Accreditation of Pharmacy Programs, 2018). According to CCAPP (2018), practice experiences need sufficient intensity, structure, and duration to accomplish educational objectives in experiential learning courses, such as clinical rotations completed in real-life settings. Students are tasked with demonstrating proficiency in competencies and skills during the experience, while preceptors assess their achievement.

In addition to the benefits of experiential learning in health professional education, pharmacy students gain practical experience in medication dispensing, identifying drug-related problems, medication therapy management, and patient counseling (Legal, 2019). Furthermore, pharmacy students learn to evaluate treatment options and make informed clinical decisions by being exposed to diverse patient cases and clinical scenarios during clinical rotations. This process is essential for safe and effective medication management in pharmacy practice. Another advantage of experiential learning is the opportunity for students to explore different pharmacy practice settings and specialties within the profession to discover their future career paths through rotations in community pharmacies, hospital pharmacies, ambulatory care clinics, and specialty pharmacy services. Experiential learning is an essential component of pharmacy education. By engaging in real-world practice experiences, pharmacy students improve their clinical reasoning skills, develop a professional identity, and prepare for the responsibilities of pharmacy practice.

2.5 Usefulness of Feedback in Pharmacy Education

Feedback in pharmacy education is central to preceptor-student interactions during experiential learning rotations. Feedback can be given through direct observation by a preceptor, peer feedback, patient feedback, and self-reflection (Natesan et al., 2023). Preceptors provide feedback to students based on their observations and assessments of the student's knowledge and skills. Direct observation by a preceptor is particularly useful because it provides real-time feedback, allowing for immediate correction and improvement. Standardized evaluation forms are used in each experiential learning course for preceptors to assess students based on the rotation outcomes. Written evaluations and assessments are commonly used by preceptors to

provide feedback to outline the strengths and areas for improvement of the students in a structured format. In addition to verbal discussions and direct observations, preceptors guide students in advancing their skills, including patient counseling techniques. In addition to individual feedback, group-based feedback sessions are another method for delivering feedback in pharmacy education in a classroom setting. These sessions often take place during small group discussions and case-based learning activities. Peer feedback is valuable as it provides a different perspective, encourages collaboration, and helps build a supportive network (Mishra et al., 2022). It promotes a continuous learning mindset among pharmacy students.

Overall, feedback plays a pivotal role in shaping the development of competent and proficient pharmacists who are prepared to meet the needs of patients and the healthcare system.

2.6 Summary

In this chapter, the models of feedback and their usefulness were outlined, and an overview of different experiential learning theories and their usefulness in HPE and pharmacy practice was provided.

CHAPTER 3: SCOPING REVIEW

This chapter briefly overviews thesis phase I, a scoping review of pharmacy students' and residents' perspectives on feedback during experiential learning.

3.1 Litreture Review: Introduction to Scoping Review

A scoping review is a review that maps and synthesizes existing research on a particular topic (Pham et al., 2014). It helps identify knowledge gaps and key areas for future research and providing an overview of the state of research on a given topic (Levac et al., 2010). Scoping reviews can be a useful first step in a research project, helping to identify the scope of the research and to guide the development of a more focused systematic review. The scoping review provides a broad overview of the current state of research on feedback for pharmacy students during experiential learning and identify areas for future research and improvement in pharmacy education. The review will contribute to developing evidence-based recommendations for providing effective feedback to pharmacy students, especially for experiential learning, focusing on improving their learning outcomes and enhancing patient safety. Moreover, the review will identify the modes of feedback delivery that are most effective, the challenges and barriers to providing feedback during experiential learning, and the impact of feedback on pharmacy student learning outcomes.

3.2 Review Question and Objectives

What is the nature and model of feedback provided to pharmacy students during experiential learning, and how is this feedback used to enhance the quality of pharmacy education?

The key objectives are as follows:

- To explore sources (preceptors, peers, patients, and self-assessment) and modalities (verbal, written, electronic, or simulation-based feedback) of feedback in experiential learning and analyze their effectiveness from the perspective of pharmacy learners.
- To identify the challenges faced by pharmacy students and residents in receiving and incorporating feedback.
- To examine the perceived impact of feedback on learning outcomes, including knowledge acquisition, skill development, and attitudes, to understand the educational value of feedback in the context of pharmacy education.
- To map the literature on feedback metatheory, MISCA, across its five components: message, implementation, student, context, and agents

3.3 Review Search Strategy

The scoping review was conducted in accordance with the Joanna Briggs Institute (JBI) methodology and reported in accordance with the Preferred Reporting Items for Systematic Reviews Extension for Scoping Reviews (PRISMA-ScR) guidelines. (Shamseer et al., 2015; Peters et al., 2020)

3.2.1 Types of Sources

The inclusion criteria for the review were studies that focused on feedback in pharmacy education, including primary research studies of any design conducted with pharmacy preceptors that report details of the pharmacy student and preceptor feedback in English language. We excluded studies that focused on other aspects of pharmacy education, such as curriculum design or assessment, as well as studies that focused on feedback from other healthcare professions, peer feedback, and feedback provided in a non-experiential learning setting. Review articles, letters, opinion papers, and editorials were also excluded.

3.2.2 Search Strategy

Participants

Studies focusing on the perspectives of pharmacy students and residents regarding feedback received during experiential learning.

Exclusion: Studies primarily focused on feedback in non-experiential learning settings or perspectives from other stakeholders (e.g., educators, preceptors) without direct input from students and residents.

Concept

This review focused on the feedback provided to pharmacy students during experiential learning.

Experiential learning in pharmacy education refers to structured placements integrated into the pharmacy curriculum, offering real-life experiential courses with

designated learning outcomes and assigned tasks to enable pharmacy students to practice skills and apply acquired knowledge (Hope et al., 2021).

Feedback: is a formative continuing process of non-judgemental information that guides and helps students or learners to build on their skills, attitudes, and future goals (Ende, 1983).

Exclusion: Studies that focused on other aspects of pharmacy education, such as curriculum design or assessment, as well as studies that focused on feedback from other healthcare professions and peer feedback were excluded.

Context

Studies conducted in various settings where pharmacy students and residents undergo experiential learning, including but not limited to community pharmacies, hospitals, clinics, and academic institutions.

Exclusion: Studies involving feedback provided in a non-experiential learning setting were excluded.

A comprehensive search strategy was developed to identify relevant literature from a variety of databases, including PubMed, Web of Science, Embase, EBSCO, ERIC, and ProQuest Central. A combination of keywords and MeSH terms related to feedback, pharmacy education, and student learning outcomes were used to identify relevant studies. (seeAppendix A) Studies were searched from database inception until the end of February 2023. Studies published in the English language without any study design (qualitative, quantitative, mixed-methods) limitations were included. Review articles, letters, opinion papers, and editorials were also excluded. Two reviewers

screened the articles for eligibility using the inclusion criteria detailed below using the PCC model.

3.2.4 Study/Source of Evidence Selection.

All identified citations were collated and uploaded to the EndNote desktop, and duplicates were removed. Titles and abstracts were screened by two independent reviewers for assessment against the inclusion criteria. Two independent reviewers retrieved potentially relevant and eligible sources in full and assessed them in detail against the inclusion criteria. Reference lists of the included articles were searched for relevant papers to ensure a comprehensive literature search. A flowchart of the results was updated throughout the review to detail the search, duplicates, and screening results. Reasons for the exclusion of sources that did not meet the inclusion criteria were reported in the scoping review. Any disagreements between the reviewers at each stage of the selection process were resolved through discussion and with an additional reviewer.

3.2.5 Data Extraction

Two reviewers independently extracted data from the included studies using a standardized data extraction tool developed by the reviewers. The extracted data included specific details, including the year of publication, participants, study objective, setting, study design, sample size, feedback model, and perceived student learning outcomes. The draft data extraction tool was piloted, modified, and revised as necessary prior to data extraction.

3.2.6 Data Analysis and Presentation

A descriptive analytical approach was employed to collect, summarize, and categorize the literature, including a numerical count of study characteristics (quantitative) and thematic analysis (qualitative). The framework synthesis approach was used to identify key themes and patterns in the data. This review explored the literature on feedback based on feedback metatheories (MISCA) (Panadero & Lipnevich, 2022). The MISCA model facilitates a comprehensive exploration of all aspects of feedback. Each component plays an essential role in understanding the dynamics of feedback processes. Considering these interrelated components, the integrative MISCA model offers a comprehensive approach to exploring the feedback process and its impact on student learning and performance.

A systematic approach was used to extract and analyze the data from these studies. Essential information from each study, including the study design, sample size, type and model of feedback, and its impact on student learning outcomes, was extracted using a structured data collection tool. Thematic analysis was also used to identify key themes in the data, such as the facilitators of feedback and the challenges of providing feedback in pharmacy education.

3.3 Review Results and Discussion

The results of the search and the study inclusion process are presented in the PRISMA-ScR flow diagram. (Figure 4). As shown in the PRISMA-ScR flow diagram, the search retrieved 1343 publications. After removing duplicates (n = 521), titles and

abstracts of 822 articles were screened, resulting in 27 full-text articles being retrieved and reviewed for eligibility against inclusion and exclusion criteria. This yielded 13 articles that were subsequently included in this review.

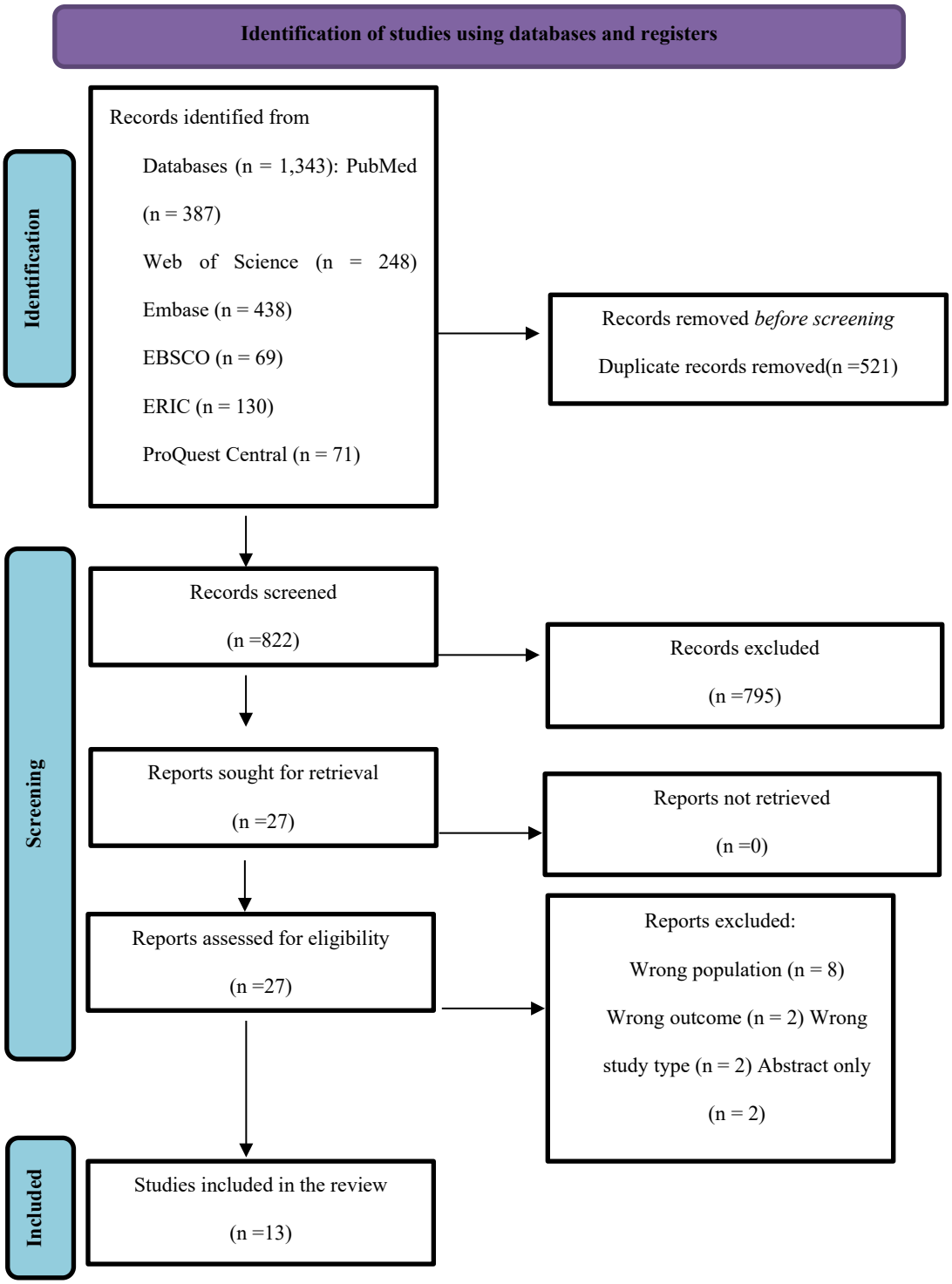

Figure 4. PRISMA flow diagram indicating the study selection process adapted from (McKenzie et al., 2021)

This review included 13 studies (Figure 1). Studies were published between 2008 and 2022. Most studies were conducted in the United States (n=6, 46%). Community care settings (42%), hospital care settings (31%), and ambulatory care settings (21%) were the most common settings in which studies were conducted. Most studies reported the perspective of undergraduate pharmacy students (46%). The sample size varied considerably among the included studies. Settings ranged from as few as 16 participants to community settings with a sample size of 136 participants.

A summary of the characteristics of the included studies is presented in Table 1. Of the 13 studies, most (62%) used cross-sectional surveys, and two used mixed methods. Only one of the 13 studies provided a clear definition of feedback, whereas none of the studies discussed the model of feedback in their manuscript. The theoretical framework used was only mentioned in two of the 13 studies. This study employed Hofstede and Hall's cultural dimension models to understand the feedback encounters and behaviors described by the students. The other study adopted the grounded theory method. Verbal feedback was the most common mode of feedback delivery (n=6, 46%). Moreover, most studies reported the perceived impact of feedback on student learning outcomes (n=10, 77%). The perceived impact of feedback reported was improved knowledge, communication skills, and clinical and self-management skills development.

Table 1. Summary of the characteristics of the included studies.

Author, Year of publication	Participants and setting	Study objective	Study design and sample size	Modes of feedback	Student learning outcomes	Feedback model and Theoretical framework
Hyvarinen, 2008	Undergraduate students in a community setting.	Analyze Finnish students' opinions of the feedback given in patient counseling training.	Qualitative study involving 136 students	Verbal as a discussion	Developing communication skills	Not described
Boland, 2014	Undergraduate and postgraduate students in community and teaching hospitals	Implement a new process for using student evaluations in developing and evaluating pharmacy residents as preceptors.	Prospective study by 23 pharmacy students for 8 residents.	Written as evaluations	Foster preceptor development in the preceptor roles	Not described
Bates, 2016	Undergraduate and postgraduate students in acute care oncology practice	Explore the use of pharmacy learners as a means to expand pharmacy services in a layered learning practice model (LLPM).	Longitudinal study of 16 learners	Verbal through micro-discussion	Improved clinical time management skills, and development of clinical and self-management skills.	Not described

Belachew, 2016	Undergraduate students in community pharmacy in Ethiopia	Investigate the overall experiences of clinical pharmacy students during their clinical attachments and to understand the breadth and depth of clinical skills provided by their preceptors.	A cross-sectional study by 58 students.	Not described	Not described	Not described
Melaku, 2016	Undergraduate students in the community in Ethiopia	Compare the perceptions of pharmacy clerkship students and clinical preceptors regarding preceptors' teaching behaviors and feedback provision.	Cross-sectional study by126 students	Verbal as a discussion	Not described	Not described
Linedecker, 2017	Undergraduate students in ambulatory care and preceptors.	Evaluate the usefulness of the direct observation of procedural skills rubric in evaluating student performance and clinical skills during ambulatory care rotations.	Cross-sectional by 47 students.	Written and verbal	Enhance the clinical and communication skills.	Not described

Wilbur, 2019	Undergraduate students enrolled in a Canadian-accredited cross-border pharmacy programme in Qatar.	Determine non-Western situated health professional student experiences and preferences for feedback in workplace-based settings.	Focus groups of 27 students	Verbal and written	Cultural influences on student feedback experiences: collectivism, power distance, and context.	Cultural dimension models by Hofstede and Hall were employed.
Schweiss, 2019	postgraduate students in ambulatory care settings	Implement and evaluate a pharmacy resident documentation peer review process.	Peer review process model that included 25 residents.	Peer written feedback	Improved patient care documentation, provide peer feedback, and the importance of effective interprofessional communication in clinical decision making.	Not described
Jacob, 2020	Undergraduates' students in community and hospital settings	Obtain students' perceptions and feedback on the experiential learning (EL) programs.	Cross-sectional survey with 121 responses	Not described	Not described	Not described

Jacob Part 1, 2020	Postgraduate students in the community and hospital settings	Obtain feedback from graduates on EL placements and assess the effectiveness of EL in preparing them for pharmacy practice.	Cross-sectional survey with 63 responses, ten one-on-one semi-structured interviews, and a focus group discussion.	Not described	Not described	A grounded theory method was adopted.
Jacob Part 2, 2020	Postgraduate students in the community and hospital settings	Obtain feedback from graduates on their EL and assess the effectiveness of EL in preparing them for pharmacy practice.	Cross-sectional survey with 63 responses, ten one-on-one semi-structured interviews, and a focus group discussion.	Not described	Not described	Not described
Hatcher, 2022	Postgraduate students in ambulatory care and community pharmacy	Describe the development and implementation of a remote required ambulatory care and required community pharmacy dual-cohort Advanced Pharmacy Practice Experience (APPE)	Cross-sectional study using electronic survey, 24 completed the survey.	Verbal and peer feedback	Improved abilities on key the Center for the Advancement of Pharmacy Education (CAPE) outcomes.	Not described

		rotation from the student pharmacist perspective				
Margolis, 2022	Undergraduate students in acute and ambulatory care.	To determine the appropriateness and feasibility of implementing the Individual Teamwork Observation and Feedback Tool (iTOFT) in (APPEs) to allow direct observation and rating of students' interprofessional teamwork skills.	Cross-sectional using a survey of 149 evaluations	Written	Enhanced preceptor feedback for students on interprofessional collaboration	Not described

3.3.2 Feedback Facilitators, Barriers, and Proposed Interventions

Most studies reported feedback facilitators (n=12, 92%) and barriers (n=10, 77%). Facilitators of feedback extracted from the scoping review included regular and timely feedback (n=6, 46%), feedback provided in a goal-oriented and objective manner (n=5, 40%), and student-specific feedback/tailored (n=4, 30%). Other facilitators identified in the review used structured rubrics to provide feedback and interpersonal characteristics of preceptors, including training and interest in providing feedback. The scoping review identified several barriers to receiving feedback. One barrier was providing extremely positive feedback and lacked constructive criticism. Other barriers included lack of feedback, providing short and quick feedback, and lack of recognition of individual performance. Moreover, the proposed intervention to enhance feedback mechanisms involved providing training for preceptors in providing feedback and communication skills and using a structured checklist to assess students' performance.

Table 2. Feedback facilitators, barriers, and proposed interventions.

Author, year of publication	Feedback Facilitators	Feedback Barriers	Proposed Interventions
Hyvarinen, 2008	Committed and trained mentors.	Short feedback discussions	Trian students to explain the use of the guidelines to their mentors.
	Mentor's interest	Lack of critical and constructive feedback.	
	Introduction to the study plan and guidelines.	Feedback highlights mistakes only.	Mentors need training in analyzing communication skills and providing constructive feedback.
	Delegation of training tasks	Not familiar with guidelines.	
		Providing only positive feedback.	
Boland, 2014	Good learning experience encouraged residents to take initiative in learning opportunities.	Not receiving formal feedback on their precepting skills.	Using student evaluations to develop precepting skills.
		Lack of training in teaching abilities and precepting skills.	Individual surveys are built for each resident, allowing for personalized feedback.

		Lack of confidence due to limited practice experience.	Regular meetings with the primary preceptor develop a strategy to improve their precepting skills.
Bates, 2016	Feedback is provided in a goal-oriented and objective manner. Feedback delivered sensitively ensures that learners feel supported. Learner and preceptor working together to create common goals. Regular reflective sessions. Providing constructive feedback that focuses on specific areas of improvement. Using rubrics ensures consistent and objective evaluations.	Lack of structured feedback. Limited time was dedicated to reflecting on the experience. Feedback was not comprehensive. The feedback had a limited diversity of perspectives.	Use of a structured practice experience continual feedback throughout the experience. Provide feedback in a process called feed-forward; in a goal-oriented, objective, performance-based, and sensitive style. Scheduled reflective sessions, followed by a formal end-of-experience evaluation.

	Offering feedback in real-time as practice experience activities occur.		
Belachew, 2016	Timely feedback.	Not described	Emphasis should be placed on preceptor training as a crucial component in providing feedback.
Melaku, 2016	Preceptors provided practical responsibilities to students. Preceptors explained the goals and expectations to the students. Preceptors are perceived to demonstrate sensitivity and supportiveness towards students. Preceptors closely supervised students. Preceptors provided students with the opportunity to ask, discuss, and exchange opinions. Preceptors spent sufficient time with students.	Subjectivity of feedback. Lack of confidence in the evaluation system and preceptors' ability to provide feedback. Students' dissatisfaction with the instructors' ability to motivate them.	Short-term training is warranted for preceptors. Preceptors should participate in workshops involving the development and implementation of new guidelines.

	Preceptors were accessible. Preceptors discussed the practical application of knowledge and skills with students.		
Linedecker, 2017	The DOPS rubric was found to be a practical tool. The use of the DOPS method allowed for both formative and summative assessment of student learning.	Inconsistencies in the feedback provided.	The use of a structured checklist to assess students' performance in areas such as communication, physical examination, and professionalism.
Wilbur, 2019	Preceptors spent sufficient time with students and provided more credible and valuable feedback. Students preferred receiving feedback in a timely manner. Students appreciated receiving negative feedback along with suggestions for improvement.	Lack of recognition and acknowledgment of students' performance. Preceptors were unwilling to accept feedback for improvement. Lack of documentation of feedback on the written evaluation report. Lack of privacy.	Development of "near-peer" teaching programs. The need for purposeful evaluation of educational interventions in workplace-based settings.

Schweiss, 2019	Written feedback was more beneficial than Likert-type scale ratings. Allow residents to self-select the notes they want to be reviewed and receive feedback on.	Lack of clinical input in the feedback process. Extremely positive and lacking constructive criticism. Involving many reviewers is tedious and challenging to manage.	Documentation should include detailed and clear plans for patient care.
Jacob, 2020	Quality assurance measures are important to ensure that tutors are qualified and capable of providing effective feedback. Providing monetary compensation to tutors for their time and effort.	Community placements did not provide them with enough time to complete their own learning objective. Lack of teaching and learning opportunities. Students expressed dissatisfaction with the limited duration of the rotation. Workload was not carefully planned and balanced.	Tutor training programs such as the Preparation for Facilitating Experiential Learning Training (PFEL), can help tutors develop the necessary skills to provide feedback. Universities should signpost relevant support staff that tutors can access if they face challenges or have questions while tutoring students. Have quality assurance measures in place to provide students with an effective and equitable placement experience.
Jacob Part 1, 2020	Not described	Not described	Implementation of mandatory training

			Tutors and placement sites should recognize the value of having students. Further evaluations should be undertaken to determine the amount of placement time required to make students practice-ready.
Jacob Part 2, 2020	Feedback should be tailored according to each student's needs. Feedback should be dialogical rather than transmission-centered. Feedback should be formalized. Continuous quality improvement processes are important to ensure that all students have a standard experience across different sites. This involves analyzing feedback from students, implementing changes if necessary, and closing the loop by providing feedback about the changes or actions implemented.	Lack of feedback	Need for quality assessment of placement sites and tutors.

Hatcher, 2022	Longitudinal feedback with opportunities to demonstrate improvement.	Lack of consistency in feedback provided by different faculty members. Remote delivery of feedback may not be as effective, it may limit the interaction between students and faculty, Remote delivery of feedback may result in delays in providing timely feedback to students.	Emphasis on high-touch, high-engagement activities that promote active discussion and consistent feedback for learning. Using interactive tools such as MyDispense® and Anticoag Games, and case presentations facilitated by various preceptors. Offer orientation sessions for faculty, preceptors, and facilitators involved in the rotation.
Margolis, 2022	The iTOFT activity provided a formal structure for feedback on interprofessional teamwork.	Not described	Use validated interprofessional assessment tools.

3.3.3 Mapping of Reported Findings on the MISCA Model

The data extracted from the included studies were mapped on the MISCA model to explore all aspects of feedback comprehensively. (Table 3). All included studies provided a clear description of the feedback message (content of feedback), implementation (purpose of feedback), and agent (person who provided the feedback. The agent or the source of feedback was mainly from students (n=10, 76%), including Advanced Pharmacy Practice Experience (APPE) students, Master (MPharm) students, and residents. A study source of feedback was peer feedback. However, some studies should have mentioned whether the feedback was tailored to the student characteristics and context (timing of feedback). The context (time) of feedback varied among the studies, at the end of the rotation (n=2, 15%), during the rotation (n=4, 30%), and after the rotation (n=3, 23%). The other studies did not provide details on the feedback context (n=4,30%).

Table 3. Mapping the reported findings with MISCA Model

Author, year of publication	**Message (Content)**	**Implementation (purpose)**	**Student characteristics**	**Context (Time)**	**Agent (self, peers, preceptors)**
Hyvarinen, 2008	Guidelines for giving feedback on communication skills and patient counselling training.	To help pharmacy students develop their communication skills systematically in real customer service situations.	Not described	At the end of the 3-month training period.	Mentors
Boland, 2014	Precenting skills, abilities in instructing,	To evaluate and provide valuable information on the precenting skills of	Not described	Feedback provided within one	APPE Students

	modelling, coaching, and facilitating.	pharmacy residents, ultimately fostering their growth and development in this role.		week of the rotation	
Bates, 2016	Focused on micro discussion, standardized feedback (e.g., rubrics), and cooperative learning to enhance educational gain through clinical activities including medication histories and patient counselling sessions.	To explore the use of pharmacy learners to expand pharmacy services in a layered learning practice model (LLPM).	The preceptor tailored the feedback based on the student's characteristics; through reflection meeting.	Feedback was given in real time as practice experience activities occurred.	APPE students and residents
Belachew, 2016	Students' experiences, satisfaction, and perceptions regarding their training program and the performance of their preceptors.	To assess the quality of practical skills received by clinical pharmacy students during their clerkship training and to evaluate the abilities of their primary preceptors in providing clinical skills during the clerkship.	Not described	Feedback was obtained at the end of final-year pharmacy students who had undergone clerkship training.	Students

Melaku, 2016	Students' strengths and limitations in clinical practice set criteria for student performance.	Increase students' efficiency and provides students with guidance and support in improving their clinical skills and knowledge.	Not described	Not described	Preceptors and pharmacy students
Linedecker, 2017	Evaluations of the student's communication skills, patient work-up, critical thinking abilities, patient interviews, and patient education. The feedback also highlights areas that require improvement and provides examples of good skills.	To assess the students' performance, evaluate their readiness for advanced pharmacy practice experiences, and determine if they meet the expectations of a P-4 student.	The feedback is tailored to the students' level of knowledge and skill, assessing their ability to perform tasks independently.	Feedback was provided after the completion of the (DOPS) exercise.	Preceptors and pharmacy students
Wilbur, 2019	Three themes are associated with cultural influences on student feedback experiences: 1) collectivism, 2) power distance, and 3) context.	To guide students' ongoing development, understand their performance, gain elaboration on their rated performance, and improve their skills.	Not described	Not described	Pharmacy students
Schweiss, 2019	Comments, written feedback, and Likert-type scale ratings on each	The feedback provided guidance on how to improve patient care documentation, provide	Not described	Feedback was given during the residency	Peers

	section of their documentation.	peer feedback, and emphasize the importance of effective interprofessional communication in clinical decision making.		program quarterly then reduced to semi-annual reviews to allow for a more thorough and thoughtful review.	
Jacob, 2020	The survey assessed students' perceptions of various aspects of the EL program including the effectiveness of the EL, tutors and placement sites, and the organization and structure of the EL.	To ensure that tutors are aware of the responsibilities and expectations.	Not described	Not described	MPharm student
Jacob Part 1, 2020	The survey contained questions assessing graduates' perceptions of the effectiveness of the EL, its organization and structure, as well as feedback on tutors and placement sites.	The feedback identified gaps in the structure and design of the EL component and to gather insights on how to improve the EL experience.	Not described	Feedback was collected after the graduates had completed their MPharm program and	MPharm student

				were undergoing their pre-registration training.	
Jacob Part 2, 2020	Their comments on the experiences observed provide an opportunity for tutors to identify and correct things the students may have misunderstood.	To provide students with an experiential base for reflection.	Not described	Not described	MPharm student
Hatcher, 2022	Application of knowledge through activities such as topic discussions and patient case presentations.	To assess the impact of the remote required ambulatory care and required community pharmacy dual-cohort (APPE) rotation on students' ability to meet the (CAPE) Outcomes.	Not described	Feedback was collected at the end of the rotation	APPE Students
Margolis, 2022	The feedback provided to students using the Individual Teamwork Observation and Feedback Tool (iTOFT) focused on their interprofessional collaboration skills.	The feedback provided to students using iTOFT focused on their interprofessional collaboration skills.	PharmD students completing advanced pharmacy practice experiences (APPEs).	Feedback was provided during required acute care and ambulatory care APPEs.	The feedback was given by preceptors who directly observed students' behavior on interprofessional teams.

3.3.4 Discussion

This review has contributed valuable insights into the perceptions of undergraduate and postgraduate pharmacy students regarding feedback during experiential learning with a focus on identifying the modes of delivery of feedback, the challenges faced by pharmacy students during experiential learning, and the perceived impact of feedback on student learning outcomes. Verbal feedback was the most common mode of feedback delivery (n=6, 46%), yet there was no comparison between different feedback modes on student learning outcomes. Compared to written feedback, verbal feedback empowers students by prompting self-directed questions, fostering critical thinking, and enabling them to take ownership of their work (Agricola et al., 2020). Verbal feedback is more feasible in experiential settings because each preceptor has fewer students than other teaching settings (Nelson et al., 2021). Effective feedback strategies include several key components that contribute to supportive students learning and growth. (Shaw, 2017; Hardavella et al., 2017)

Firstly, understanding the importance of feedback with clear and specific objectives sets the foundation for its value. Timeliness plays a pivotal role, emphasizing the need for feedback to be delivered after a task to maximize its impact. Constructive and actionable feedback is another essential component, as it guides individuals toward improvement by highlighting specific areas for improvement and providing a plan to overcome weaknesses (Gnepp et al., 2020). Emphasizing a commitment to follow-up ensures that the feedback is not a one-time event but an ongoing cycle that supports students' progress.

The articles included in this review describe the feedback facilitators and barriers. The most frequently reported facilitator provided timely feedback supported by other literature (Henderson et al., 2019). Moreover, according to the guidance document for accreditation standards in postgraduate year-one pharmacy residency programs, the American Society of Health-System Pharmacists Standard 3.4 mandates providing verbal formative feedback (ASHP Commission on Credentialing, 2021). The challenges described in this review were the lack of constructive criticism and the providing extremely positive feedback. A systematic review focusing on feedback in nursing education emphasized that the feedback should be timely and include both positive and constructive comments (Paterson et al., 2020). Moreover, the limited time is one of the barriers for the preceptors to provide comprehensive, consistent, and constructive feedback (Peters et al., 2020). The proposed intervention to enhance feedback involved training for preceptors and using a structured checklist to assess students' performance. Consistent with prior studies, an Australian study by Lucas et al. highlighted that standardization of preceptor training was important, particularly in feedback (Lucas et al., 2018). Despite the rich data obtained, specific gaps in the existing literature warrant further investigation. The feedback provided to pharmacy students is mainly written in summative evaluation, and the quality of feedback is rarely assessed (Bing-You et al., 2017). There is a limited understanding of how feedback is used in pharmacy education, particularly during experiential learning (Panadero & Lipnevich, 2022). The literature lacks a clear, comprehensive, and standardized definition of feedback in pharmacy practice during experiential learning. The definition of feedback in pharmacy education is crucial for establishing consistency and ensuring a standardized understanding and application of this fundamental element across pharmacy educational settings (Di Costa, 2010). Second, studies exploring the process

and impact of feedback in pharmacy education are needed to consider the integrative MISCA model. A robust feedback model serves as a guiding framework that facilitates effective communication between educators and students (Lucas et al., 2018). A well-structured feedback model provides a systematic approach for preceptors to communicate constructive insights, enabling students to understand their strengths and identify areas for improvement with a clear action plan. Models of feedback are crucial in medical and pharmacy education as they provide structured frameworks that enhance precision, ensuring effective communication and improvement strategies for students. Moreover, this model contributes to the overall quality of pharmacy education by promoting consistency and transparency in the feedback process. There is also a need to use a theoretical framework in pharmacy education research to assist researchers in better understanding the feedback process and guiding the implementation of the proposed intervention. This can result in an effective and sustained feedback process during experiential learning (Margolis et al., 2022). Implementing a theoretical framework and feedback models helps in measuring the impact of feedback on student outcomes and understanding the strategies that can enhance student performance and learning (Margolis et al., 2022). The lack of consistent, constructive, timely, and individualized feedback, as reported by most of the included studies in this review, highlights the need for feedback model implementation in pharmacy education.

To the best of our knowledge, this scoping review is the first to map studies using the MISCA model to explore all aspects of feedback in the literature comprehensively. It is essential to highlight that most studies were conducted in the USA and Europe, in addition to including studies from Africa and one from the Middle East, as experiential learning experiences differ in each country. One limitation is that

the review was restricted to primary research articles published only in English, which may have limited our findings.

Future research in pharmacy education should investigate the implementation and impact of effective feedback models in experiential learning. In addition, research focuses on successfully implementing the proposed interventions to improve feedback. Equally important is exploring preceptors' training programs to ensure they are well-equipped to provide constructive feedback and action plans for improvement and follow-up during experiential learning. These areas require continuous exploration to enhance the feedback process and improve the quality of pharmacy education that promotes students' development and satisfaction.

This review provided a wide breadth of literature on the perceptions provided by pharmacy students regarding their experiences of receiving feedback during experiential learning that was mapped with the MISCA model. Our findings highlight the importance of the implementation of a feedback model in pharmacy education and preceptor training programs to ensure effective and quality feedback for pharmacy students. Future research should investigate the implementation and impact of effective feedback models in experiential learning.

CHAPTER 4: METHODOLOGY

This chapter summarizes the methodology employed in Phase II of the thesis. It provides an overview of various research methodologies commonly used in healthcare research and discusses their application. Additionally, this chapter briefly describes different types of qualitative studies, and methods for data collection, management, and analysis.

In healthcare, various research methodologies address specific research questions to inform decision-making, improve patient care, and contribute to advancing knowledge in the healthcare field (Tariq & Woodman, 2013). Several research methodologies are commonly used in healthcare research: quantitative, qualitative, and mixed method research (Pyo et al., 2023). Quantitative research methods involve collecting and analyzing numerical data, such as survey responses or clinical outcomes (Smajic et al., 2022). These methods employ statistical and mathematical techniques to draw conclusions and make generalizations about a population. This approach is often used in studies that aim to measure a disease's prevalence, evaluate the effectiveness of treatment, or analyze healthcare outcomes (Renjith et al., 2021). On the other hand, qualitative research methods focus on exploring and understanding individuals' experiences, perspectives, and behaviors. Qualitative research methods, such as phenomenology, ethnography, interviews, and focus groups, are particularly useful in exploring complex social phenomena in healthcare and understanding the perspectives and experiences of patients, healthcare providers, and other stakeholders (Creswell, 2013).

Mixed methods research combines quantitative and qualitative approaches to provide a more comprehensive understanding of the research question. This approach involves collecting and analyzing numerical and non-numerical data, allowing researchers to explore multiple dimensions of a phenomenon (Smajic et al., 2022). For example, mixed methods research may be used to investigate the effectiveness of a healthcare intervention by collecting both quantitative data on patient outcomes and qualitative data on patient experiences. These different methodologies can be applied depending on the nature of the research question, study objectives, and the nature of the phenomenon being studied in healthcare research (Renjith et al., 2021).

Qualitative research explores how people describe their experiences, perspectives, behavior, and beliefs in depth (Holloway & Galvin, 2017). It involves emerging questions, data collection and analysis, generating themes from the data, and interpreting the meaning of the generated data and themes (Creswell, 2013). The main types of qualitative research methodologies include ethnographic, historical, grounded theory, narrative, phenomenological, and case study research. First, ethnographic research involves understanding a group's culture, behaviors, and social interactions. Researchers observe and interact with participants to gain insights into their perspectives and practices (Reeves et al., 2013). Historical research, on the other hand, examines past events and experiences to understand their impact on the present. The analysis involves historical documents and artifacts to uncover patterns and implications on current practices. Grounded theory research focuses on developing theories grounded and based on empirical evidence (Chun Tie et al., 2019). Narrative research explores individual life stories and experiences, using storytelling to communicate participants' quotes (Pinnegar & Daynes, 2007). Moreover, phenomenological research helps to understand the essence of lived experiences and

individuals' perceptions regarding a specific phenomenon (Matua, 2015). Finally, case study research includes an in-depth exploration of a particular case or cases to gain a comprehensive understanding of a specific issue. The researchers collect and analyze data from multiple sources to provide detailed descriptions and insights into the case under study. Each qualitative research methodology offers unique approaches and techniques for investigating complex phenomena within their natural contexts.

Qualitative research is dedicated to exploring and comprehending phenomena through adaptable methods such as in-depth interviews and observations, acknowledging the presence of dynamic and diverse realities (Renjith et al., 2021). Conversely, quantitative research focuses on testing and affirming hypotheses using structured methods like surveys or scales. This methodology prioritizes numerical data and statistical analysis to establish patterns and relationships. While qualitative research emphasizes the process and context of the phenomenon, quantitative research is concerned with outcomes and predicting causal relationships. Qualitative methods are considered more flexible than quantitative methods because they allow the interaction between the researcher and the study participant to be more spontaneous and adaptive to required changes. For example, open-ended questions do not have to be worded in the same way as each participant; they can be followed by subsequent questions and tailored to be more precise and more informative (Weller et al., 2018). In addition, the participants will be able to respond using their own words and elaborate more and in greater detail than quantitative methods (DiCicco-Bloom & Crabtree, 2006; Alsaawi, 2014).

4.1 Research Objectives

The key objectives are as follows:

- To explore preceptors' and students' experience and perspectives on feedback in the context of experiential learning, including challenges and facilitators of the feedback process.
- To identify the key factors influencing the effectiveness of feedback within experiential learning settings from both students' and preceptors' perspectives.
- To explore potential strategies for enhancing the feedback process in experiential learning.

4.2 Ethical Approval

The study was conducted in full conformance with the principles of the "Declaration of Helsinki," Good Clinical Practice (GCP), and the laws and regulations of the Ministry of Public Health (MoPH)in Qatar. This study was approved by Hamad Medical Corporation (HMC) Medical Research Center (MRC-01-23-426) and the Qatar University Institutional Review Board (Appendices D and E).

4.3 Study Design

A descriptive qualitative methodology was employed using semi-structured interviews (face-to-face and virtual). Semi-structured interviews allowed students and preceptors to express themselves and share their experiences in their own words, which may add depth and richness to the responses (DiCicco-Bloom & Crabtree, 2006; Alsaawi, 2014). The topic guide was developed based on the research objectives to outline the specific areas that should be addressed during the interviews. This was

followed by an extensive review of relevant literature in the feedback field during EL. (Burgess et al., 2020; Bing-You et al., 2017) (see Appendix B). The guide consisted of a set of initial open-ended questions to initiate the discussion aligned with the research objectives. This approach allowed an organized flow of discussion and comprehensive expression of participants' opinions. The topic guide was reviewed by the team members for credibility. Furthermore, the questions were refined to ensure clarity and logical flow in the interview discussions. Probes as follow-up questions were also used to ask the participants to elaborate more on specific aspects of their responses.

4.4 Data Collection

Qualitative research includes different data collection techniques, including interviews, focus groups, content analysis, narrative life histories, simple observations, audio and video recordings, and content analysis (Renjith et al., 2021). Among these methods, one-to-one interviews, focus group discussions, and participant observation are the most prevalent. Focus group discussions effectively produce data by understanding different responses to a specific topic. These discussions typically involve 6 to 12 participants and can be heterogeneous or homogeneous, depending on the characteristics of the participants (Grossoehme, 2014). Conversely, in-depth interviews capture individuals' stories, experiences, perceptions, and viewpoints, especially when exploring sensitive topics. Participant observation involves the researcher in the research setting to observe and document the participants' experiences, behaviors, and interactions. Therefore, Interviews were used rather than focus groups because participants might need to be more comfortable sharing their views with others about this topic.

4.5 Study Setting and Study Population

We planned to enroll 10 pharmacy students and 10 preceptors from all HMC facilities. The actual sample was guided by data saturation, and it was expected that data saturation might occur after recruiting 10 participants; however, this was just a tentative number. The settings included preceptors from the community and hospital settings because the feedback process needs to be assessed regardless of the site.

Inclusion criteria:

- Age above 18 years
- Speak and understand English
- Preceptors have held their position with QU for a minimum duration of three years..
- Preceptors who had served as preceptors in the previous year.
- QU undergraduate pharmacy students in years 3, 4, and 5 and Doctor of Pharmacy program who underwent experiential learning as part of the core curriculum.

Exclusion criteria:

- QU undergraduate pharmacy students who were absent for over 50% of their rotation period.QU undergraduate pharmacy students who were reported for professional and/or academic misconduct by the preceptor.

The participants (students and preceptors) were approached through an email invite sent by the author to participate in an interview session that lasted approximately

45–60 minutes. The email included the research information sheet and the consent form in English. (see Appendix C). Participants were informed about the study objectives, rights, and risks. Then, when the participants agreed to participate, they were asked to email the signed consent form to the researchers before the interview. Before starting the interview, the investigator confirmed that the sent consent form was clear and that the participant understood it well. The interviews were conducted face-to-face or online through Microsoft Teams ©, depending on student/preceptor availability. During the session, the participants were asked to share their perceptions of the feedback provided during the experiential learning using a semi-structured interview guide. The session was audio recorded using an audio recorder to ensure that all participants' views were captured accurately. The participants had the right to refuse audio recording as stated in the research information and informed consent form. In this case, the interviewer would take notes of the key points raised by the interviewee during the interview session. The transcripts were sent to all participants to confirm their perspectives. The research team and QUIRB have access to interview data, and no personally identifiable datawere used in any research publications or reports.

Sampling:

The list of students and preceptors was identified and generated from the QU College of Pharmacy (CPH) contact database. Pharmacy students and QU preceptors who were enrolled in experiential learning were purposively selected to participate in the study. Purposive sampling is considered to be one of the most successful sampling strategies when data analysis is performed in conjunction with data collection. Purposive sampling involves selecting participants based on specific criteria to increase

the study's credibility (Gentles et al., 2015). Other types of sampling in qualitative research include convenience sampling, snowball sampling, and intensity sampling. Each type has implications in qualitative studies; convenience sampling allows easy and convenient recruitment, meaning that the participants are easily accessible. However, this might lead to a biased sampling. Snowball sampling depends on the early participants to identify additional study participants (Renjith et al., 2021). This sampling technique is best adopted when participants' findings are difficult to access or hard-to-study populations. Finally, intensity sampling is used to select cases or participants that provide rich and in-depth information about a specific phenomenon of interest.

Sample Size:

There is no prior calculation or fixed formula for sample size in qualitative research. Instead, it depends on the type of sampling and the research question (Cleary et al., 2014). Mostly, sample size depends on “Data saturation,” meaning when the researcher reaches a point where recruiting new participants would not provide new data. Data saturation occurs when no new information emerges, indicating that all relevant aspects of the studied phenomenon have been adequately captured. Recruitment continued until saturation was achieved and an agreement was reached between the research team that no new concepts or ideas were emerging (Guest et al., 2006).

4.6 Data Management

Collected data were saved on a password-protected computer accessed only by the HMC and QU researchers. All participant data were anonymously stored using a code system. Each participant was assigned a code. In the transcription, the participants were referred to using the assigned code. The link between the code and the identifier was destroyed once the data collection was completed, and the de-identified data would be stored for at least five years. Only the PI had access to the Excel sheet containing the code matched with the participant's name, thus ensuring participants' confidentiality . In addition, all participants were sent a transcript of their interviews to confirm their perspectives. De-identified data were shared outside HMC with the Qatar University (QU) College of Pharmacy (CPH) faculty, who are members of the research team. The participants had the right to withdraw consent at any time.

4.7 Data Analysis

Data analysis of interview transcripts was conducted using reflexive thematic analysis as a methodological approach (Campbel et al., 2021). Thematic analysis was conducted to generate key themes and subthemes. The study was conducted using a Braun and Clarke six-step framework (Byrne, 2022). The first step involves familiarization with the data, where the interview transcripts were transcribed and thoroughly reviewed to develop a deep understanding of the content. An initial coding phase was conducted to employ an inductive approach to generate codes. The themes were then developed by clustering the related codes to reflect participants ' experiences and perspectives. Once the themes were defined and organized, a thematic map was created to present the relationships between the different themes. The final step

involved writing a narrative that integrated the identified themes, supported by participants ' quotes from the interview data (Thematic Analysis, 2017; Kiger & Varpio, 2020). Moreover, Lincoln and Guba's criteria were adapted in this research to ensure trustworthiness during each phase of thematic analysis (Lincoln & Guba, 1985). First, credibility was established through prolonged engagement with the interview data. Then, transferability was addressed by providing comprehensive details of the research setting, participants, and analytical process. For instance, during the initial coding phase, many codes were identified. "Guidance as a role of preceptors" was labeled as a code when participants discussed the role of preceptors from their perspectives. Another code, "daily feedback," was mentioned when participants emphasized the importance of the timelessness of feedback, which can affect their performance. As coding progressed, these individual codes were grouped into broader categories, such as "Components of Feedback." Then, themes emerged from these categories, such as "Effective Feedback Strategies." Through the process of coding, categorization, and theme development, valuable insights were gained about the research topic that addressed the research-specific objectives.

Moreover, dependability was addressed by documenting the methodological steps in detail during the analysis. Finally, confirmability was maintained through complete records of the data and reflexive notes, triangulation using multiple perspectives to interpret themes and draw conclusions, and following a reflexive approach.

CHAPTER 5: RESULTS

This chapter describes the results of qualitative interviews aimed at exploring perceptions of feedback within the context of experiential learning among pharmacy students and preceptors. Themes are supported by quotes from the participants' responses. The topic guide can be found in Appendix B.

5.1 Participants Demographics

Pharmacy Students (n = 12) were from different pharmacy academic years, and preceptors (n = 12) had a diverse range of experience as preceptors. The demographic characteristics of participants are outlined in Tables 4 and 5. Half of the preceptors had an experience of 6-10 years as a preceptor.

Table 4. Characteristics of the student participant.

Characteristics	**Number (%)**
Gender (Female)	12 (100)
Academic year	
Year 3	3 (25)
Year 4	1 (9)
Year 5	4 (33)
Doctor of pharmacy	4 (33)
Number of rotations	
1	3 (25)
2	1 (9)
6	4 (33)
14	4 (33)

Table 5. Characteristics of the preceptors participant.

Characteristics	Number (%)
Gender	
Female	6 (50)
Male	6 (50)
Years of precepting	
3-5	3 (25)
6-10	6 (50)
11-15	3 (25)
Area of practice	
Community	4 (33)
Hospital	8 (67)
Position	
Pharmacist	5 (42)
Pharmacy supervisor	1 (8)
Clinical pharmacist	4 (33)
Clinical pharmacist speciliast	2 (17)

5.2 Themes

Four major themes were identified: facets of perceptions in experiential learning, effective feedback strategies, perceived barriers to providing feedback and facilitators of effective feedback, and proposed strategies to improve feedback provision by preceptors during experiential learning. Each theme was further classified into sub-themes. (Figure 5) The following section describes the identified themes, demonstrated with quotations from participants coded by interview (Int) and students or preceptors (S: Student, P: Preceptor).

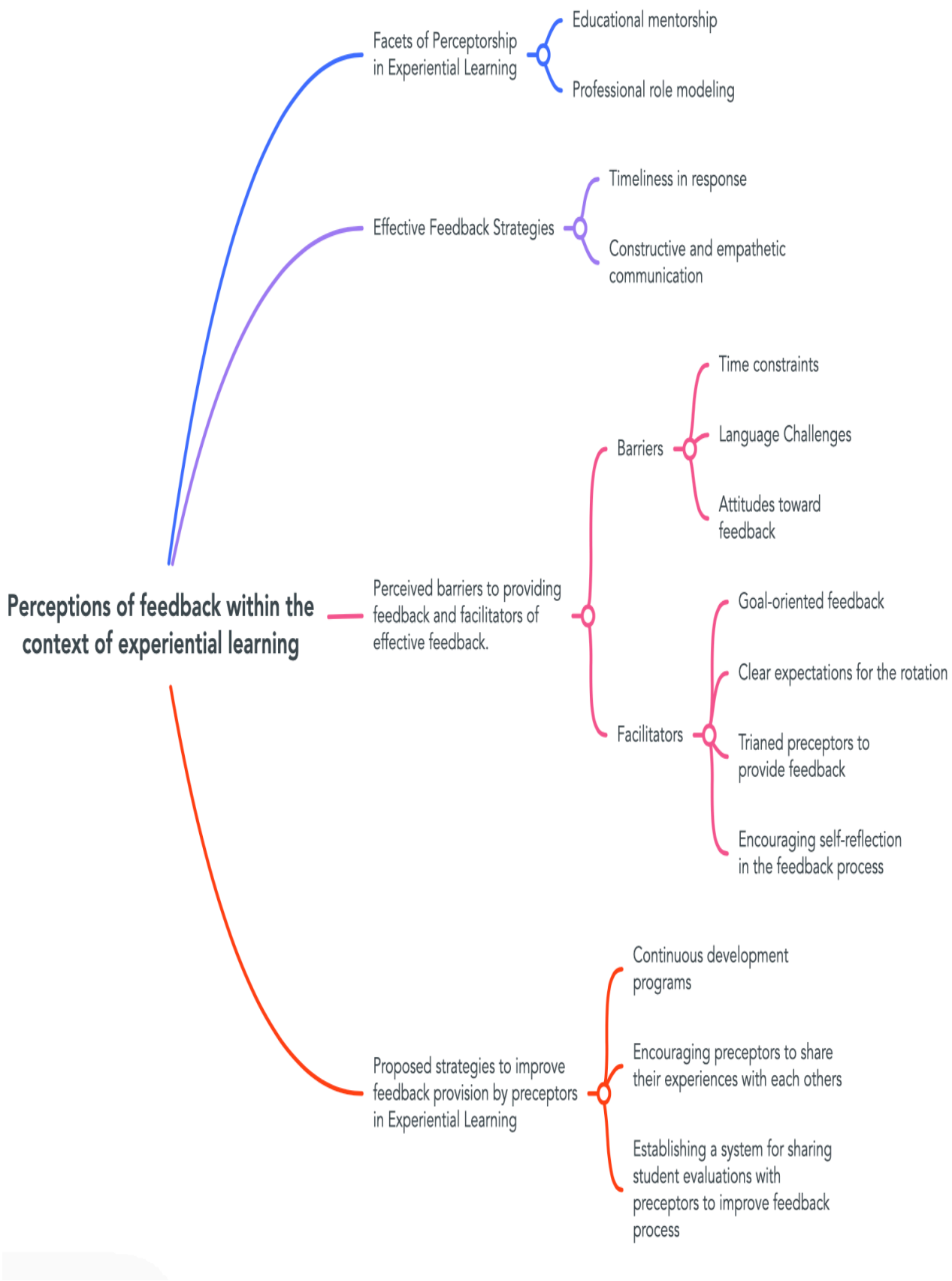

Figure 5. Key themes and sub-themes

5.2.1 Facets of Preceptorship in Experiential Learning.

The interviews with pharmacy students and preceptors highlighted a significant theme concerning the perceived role of preceptors in experiential learning. Preceptors, in their responses, emphasized their roles as not only mentors and educators but also as role models, highlighting the importance of applying clinical knowledge and professionalism. Similarly, pharmacy students consistently emphasized the critical role of preceptors as guides throughout their experiential learning journey.

5.2.1.1 Educational Mentorship

The majority of preceptors identified teaching and guiding students as their primary responsibility. They expressed their role as an educator and mentor, addressing the practical needs of the students during experiential learning.

"my role is to teach and guide the student, focusing on the practical aspects and address the need of the students." (Int14P2)

All the students agreed that teaching and mentoring are the primary roles of the preceptors, with a focus on providing guidance and practical insights.

"I think the role of the preceptors is like to teach the students to guide them…So first responsibility of the preceptor I think it to guide us..to tell us about like the practice." (Int1S1)

5.2.1.2 Professional Role Modeling

Preceptors highlighted that providing hands-on experience, such as guiding students through patient consultations or demonstrating how to prepare medications, is

essential in shaping students' personality and communication skills during the learning process.

“ to provide them a practical experience and also knowledge and sometimes even personality and communication skills.” (Int16P4)

A preceptor described his role as not limited to teaching but also serving as a role model for pharmacy students, embodying professional ethics, patient care, and effective communication.

“ I think my role not just being an educator, is trying to be a role model for the future generation of pharmacist.” (Int22P10)

Supporting preceptors' perceptions, a student emphasized the importance of being a role model to represent their future in the pharmacy practice.

“ being a role model also, so the students see their preceptor as their future.”(Int7S7)

5.2.2 Effective Feedback Strategies

Throughout the interviews, participants shared their perspectives on the critical components of effective feedback during experiential learning. Both Pharmacy students and preceptors highlighted the significance of prompt and individualized feedback, emphasizing its motivational impact and the importance of maintaining a private environment for feedback discussions.

5.2.2.1 Timeliness of Response

Both students and preceptors emphasized the importance of providing on-the-spot feedback, citing that timely feedback during the rotation allows for continuous improvement in front of the preceptor and fair evaluation.

"Daily feedback, even on the small tasks is very beneficial for us because during you this rotation you can improve my in front of that receptor. " (Int3S3)

"Part of my teaching philosophy is that I believe that feedback is very important and timely feedback is even more important, I prefer that feedback is provided on spot. So, for example, at least on the same day." (Int15P3)

However, one of the preceptors believed that a minimum one-week duration with students was needed to offer effective feedback, stating that getting to know the students more would provide proper feedback.

"For me you need to spend a minimum of one week with the student to provide the proper feedback, because you really need to get to know them. A feedback from the first day or two days will not give you the right." (Int19P7)

5.2.2.2 Constructive and Empathetic Communication

Constructive and empathetic communication incorporates various elements, including specificity in offering targeted feedback, motivational aspects of feedback, the necessity of maintaining privacy during the feedback process, and the use of suitable vocabulary when delivering feedback. In this context, feedback serves to identify areas for improvement and inspire and motivate pharmacy students to strive for excellence.

One of the preceptors highlighted the value of providing specific feedback by offering specific solutions to the identified issues faced by students.

"Good feedback, should be timely, should be reasonable. And it should be specific to the point and it should rather providing a solution to a problem rather than pointing at the problem." (Int15P3)

A student believed that providing a clear plan on how to overcome and address the student's areas of weakness is an essential component of effective feedback.

"When someone is giving you this feedback, they are also giving a tips on how you are going to improve yourself in the future." (Int9S9)

Both students and preceptors emphasized the significance of positive feedback in encouraging students to maintain high motivation and improvement.

"Positive feedback experience ..it's motivates me actually to do things right in the next or in the following weeks." (Int10S10)

"If I see something on the spot that's positive, I encourage the student. I would highlight it so this for me it will give them a Bush." (Int19P7)

Participants stressed the importance of maintaining privacy in the feedback process, as it creates a safe environment for constructive discussions.

"I believe the privacy and this is the most important thing not to insult them in front of others." (Int16P4)

"Among the quality of the feedback, the factors which are very crucial, is the environmental setting, such as a place, you know, crucial role. It has to be, you know, private face to face setting." (Int22P10)

On the other hand, a student expressed her preference for receiving positive feedback in front of the medical teams, which she considers a sense of accomplishment and motivation.

"if I did something good, I want to hear that I did something good, even if we are not alone, like in front of the team or in front of other other people like this is like something to like be proud of." (Int1S1)

Both students and preceptors stressed the choice of words when providing feedback, noting its influence on students' attitudes and overall learning experience.

"I believe it's more based more on that way of wording the feedback.It could be motivating or demotivating for us." (Int5S5)

"Good feedback It should be very specific, timely and the use of appropriate language it should include a positive reinforcement." (Int15P3)

5.2.3 Perceived Barriers to Providing Feedback and Facilitators of Effective Feedback.

Perceived barriers to effective feedback delivery include time constraints, language challenges, and student and preceptor attitudes. Conversely, facilitators of effective feedback encompass strategies and practices that enhance the feedback process, including goal-oriented approaches, clear expectations, preceptor training, and self-reflection. Understanding these barriers and facilitators is essential for developing strategies to optimize the feedback process during experiential learning.

5.2.3.1 Barriers:

a. Time Constraints

Due to a time constraints, most students faced challenges getting proper feedback from specific preceptors.

"I can say that the main problem I faced with some of my preceptors was the time, umm, that they are always busy." (Int5S5)

b. Language Challenges

The preceptor stated that using negative language or poorly phrased feedback may lead to defensiveness, or misunderstanding, between the student and the preceptor. The participants highlighted that effective feedback is not only about the information provided but, more importantly, about how that information is communicated.

"*A negative feedback would be some sort of there is a blame other than highlighting points for improvement, the language matters a lot when you provide a feedback.*" (Int19P7)

c. Attitudes towards Feedback

Student and preceptor attitudes can significantly affect the feedback process, as negative attitudes may lead to resistance or defensiveness when receiving or providing feedback. Some preceptors mentioned that students being careless and unwilling to hear and apply the feedback provided by the preceptor can negatively affect the overall learning experience.

"When you show them how to do it and they still don't do it and there is an attitude slightly that we can say slightly careless, then this would be discouraging to you." (Int19P7)

"Always one of the key aspect of assessment or you know initial assessment is how the attitude is because the three components are crucial knowledge, skills and attitude. However, the the driving force or the factor is the attitude. So somebody with positive attitude is likely to benefit, which would lead to enhancement of the knowledge, you know, polishing their skills and all that." (Int22P10)

On the other hand, some preceptors lack receptivity or openness to receive feedback from students to improve their teaching, potentially affecting the relationship between students and preceptors. Some students may lose interest and trust in learning from their preceptors.

"Some perceptors are taking it personal somehow. Sometimes you are scared that the preceptor will not accept the feedback.For this make you sometimes not to speak up." (Int5S5)

5.2.3.2 Facilitators

a. Goal-Oriented Feedback

Students and preceptors highlighted that outlining goals at the outset of each week or rotation establishes a clear framework of tasks and optimizes the learning process. Additionally, setting individualized goals in collaboration with students fosters a sense of accountability, enabling preceptors to provide targeted feedback aligned with the rotation learning objectives throughout the learning experience.

"they explained our goals and tasks at the beginning, so they made clear for us in the beginning of every week."(Int12S12)

"In the first day of the rotation, usually I sit with the student to set our goals during this rotation, I asked the student to let their goals and then we discussed these goals. So like I usually when the student perform any task I tried to give her immediate feedback." (Int14P2)

b. Clear Expectations for the Rotation

Both students and preceptors emphasize the significance of communication between preceptors and students, highlighting the importance of clearly outlining expectations and tasks to ensure a smooth progression of learning and responsibilities throughout the rotation.

"it was a really like efficient way of the preparing students from the beginning of the week would they have to do what they're expecting and having things like having a list." (Int12S12)

"Explaining to the student about me definitely need to know what that preceptor, so they're doing the task that should expected to do gradually across the four weeks. . That's why initial communication is really important to establish, let's say, agreement between the preceptor and the student." (Int13P1)

c. Trained Preceptor to Provide Feedback

The analysis also revealed variable student experiences regarding the feedback provided by preceptors, with some offering comprehensive feedback while others not maintaining consistency. This underlines the importance of preceptor training to ensure uniformity and effectiveness in delivering feedback, ultimately enhancing the overall learning experience for students.

"In my experience some perceptors provided rich feedback, some perceptors did not. So it was not consistent. So I think it's important for them to be trained on how to properly provide feedback for students that would improve the student itself ."

(Int4S4)

"They should give the training to the newly joined preceptors even the old preceptors before the start rotation." (Int21S9)

d. Engourge Self-Reflection in the Feedback Process

Preceptors highlight the need for students to acknowledge the necessity for personal change and engage in self-reflection to facilitate their growth and development. On the other hand, some students were not aware of the significance of self-reflection.

"*I think it's very important to do a a reflection in the end of the day, not necessarily every day because of the the time constraints and duties. But reflection should be one of the constant."* (In17P5)

"My emphasized on the fact that they need to believe that they need to change so they have to do the self reflection themselves as well." (Int19P7)

5.2.4 Proposed Strategies to Improve Feedback Provision by Preceptors during Experiential Learning.

5.2.4.1 Continuous Development Programs

Reflecting on their preceptorship experience, most of the preceptors recalled attending a single session at Qatar University, suggesting a need for frequent and continuity in preceptors' development sessions. This emphasizes the participants' belief in the significance of regular and ongoing opportunities for feedback sessions to optimize learning and development throughout their preceptorship journey.

" I remember that we had one session with Qatar University at the beginning of joining the preceptorship… I I've only attended this as like once, so I would I think that having like a frequent session." (Int14P2)

"*Providing programs in a blended setting as workshops as well as seminars. So it's a combination of all those activities which would help us to identify .. and be constantly updated because I feel this area of under the preceptorship is crucial."* (Int23P10)

5.2.4.2 Encouraging Preceptors to Share their Experiences.

Preceptors emphasized the importance of establishing a platform to share experiences, suggesting that collaborative activities could enhance mutual learning and growth. This highlights the potential benefits of fostering a culture of continuous learning and feedback exchange among preceptors, which could contribute to ongoing professional development and improvement within the organization.

"if we spend time with each other doing activities together, so our discussions together or precepting students together in specific ways so we can learn from each other would be helpful. So we peers feedback to each other will be nice for the future."(Int13P1)

"Providing a platform of sharing the experiences within the group of preceptors in an organization." (Int23P10)

5.2.4.3 Establishing a System for Sharing Students' Evlauations with Preceptors to Improve the Feeback Process

The data also suggests a lack of communication regarding student feedback on the preceptors' performance, as the feedback provided by students about the preceptors

is only submitted to the university and not shared with the preceptors. Sharing feedback allows preceptors to identify areas for improvement and enhance their teaching methods.

"I don't remember any time that the university contacted me to discuss this feedback. Whether it's the good or bad, so I would also suggest if the feedback of students about the receptors are discussed with them also." (Int14P2)

CHAPTER 6: DISCUSSION

This chapter summarizes the research findings and interprets their implications within the context of existing literature, particularly within the health professional and pharmacy education field. In additionit discusses the strengths and limitations of qualitative research and provides suggestions for future studies.

6.1 Summary of Findings as They Relate to the Literature Reviewed

In this study, we explored pharmacy students' and preceptors' perceptions of feedback within the context of experiential learning and identified the key factors that influence its effectiveness, offering insights into enhancing the feedback process for improved learning outcomes. Four themes were identified: facets of perceptions in experiential learning, effective feedback strategies, perceived barriers to providing feedback and facilitators of effective feedback, and proposed strategies to improve feedback provision by preceptors during experiential learning. Preceptors emphasized their responsibilities as educators and mentors, guiding the students to apply their knowledge in a practical training setting. Similarly, students consistently recognized preceptors as essential guides throughout their experiential learning journey. These roles are in line with previously reported preceptor role activities (Devine & Doty, 2012; ASHP Commission on Credentialing, 2021). In addition, professional role modeling emphasizes the significance of preceptors providing hands-on experience to shape students' personality and communication skills during the learning process. Preceptors described their role as educators and role models for pharmacy students, demonstrating professionalism and practical skills. These findings highlight the

important role of preceptors in experiential learning, as both educators and role models to guide students in their journey toward becoming competent and professional pharmacists in their future careers.

The interviews with pharmacy students and preceptors gave insights into effective feedback strategies for experiential learning. Participants emphasized the importance of timely and individualized feedback, highlighting its impact and the need for a private environment during feedback discussions. A systematic review of feedback for nursing students highlighted that feedback must be timely (Paterson et al., 2020). Similarly, these findings were corroborated by multiple studies in pharmacy education during experiential learning (Bates et al., 2016; Belachew et al., 2016; Melaku et al., 2016; Wilbur et al., 2019a). Additionally, maintaining privacy during feedback discussions was believed to be crucial by both students and preceptors, contributing to a safe and constructive learning environment. A study supported privacy as an effective feedback strategy and considered it to be a factor that influences the quality of feedback and its impact on student learning. It has been reproted that a private setting helped to establish the rapport between preceptors and student. Pharmacy residents expressed appreciation for one-on-one interactions and the sense of significance they felt when preceptors dedicated time to communicating and providing feedback. Additionally, privacy was shown to minimize distractions and interruptions commonly encountered in patient care settings. Moreover, constructive and empathetic communication was highlighted as another effective feedback strategy incorporating specificity in feedback, motivational aspects, and suitable vocabulary. Feedback served not only to identify areas for improvement but also to inspire and motivate students. Participants highlighted the importance of providing positive reinforcement to encourage students' continuous improvement. The choice of words in feedback delivery

was emphasized by both groups, with participants acknowledging its influence on students' attitudes and overall learning experience. It was supported by literature that feedback motivates the students to engage in the learning process (Steven et al., 2014).

The research identified several perceived barriers to providing feedback, including time constraints, language challenges, and negative attitudes from students and preceptors. Time constraints were a significant issue, with many students facing difficulty receiving proper feedback due to the limited time availability from the preceptors. One of the studies reported that limited time dedicated to reflecting on the experience was a barrier to receiving feedback from APPE students and residents in acute care oncology practice (Bates et al., 2016). Moreover, time is one of the most reported barriers for the preceptors to provide constructive and comprehensive feedback (Paterson et al., 2020). Also, negative attitudes of students or preceptors towards feedback were found to impede the feedback process, leading to resistance. A previous study aimed to explore how students perceive the ideal roles and characteristics of pharmacist preceptors andfound that negative attitudes led to student dissatisfaction with preceptors (Knott et al., 2022).

Participants reported several facilitators of effective feedback during experiential learning. Firstl, students and preceptors emphasized the importance of goal-oriented feedback, highlighting how setting clear objectives at the beginning of each rotation can enhance the learning process. Another significant aspect identified was the variability in feedback provision among preceptors, emphasizing the necessity of preceptor training to ensure consistency and effectiveness. Finally, it is important to encourage self-reflection in the feedback process to facilitate personal growth and development for students, although some students were not fully aware of its significance. These findings were similar to those of the scoping review as phase 1 of

the thesis with regards to facilitators and barriers to effective feedback. The facilitators of feedback extracted from the scoping review included regular and timely feedback, feedback provided in a goal-oriented and objective manner, and having trained and interested preceptors.

Finally, the interviews revealed several proposed strategies to improve feedback provision by preceptors during experiential learning. Firstly, participants emphasized the importance of continuous development programs for preceptors, highlighting the need for frequent and ongoing opportunities for feedback sessions. Additionally, a suggestion was to encourage preceptors to share their experiences through a platform for feedback and experience exchange. Furthermore, participants stressed the importance of establishing a system for sharing student evaluations with preceptors to allow them to gain valuable insights into their performance and teaching methods. In line with previous research, a study conducted in Australia by Lucas and colleagues emphasized the importance of standardizing preceptor training, particularly in providing feedback (Lucas et al., 2018). Moreover, a study conducted in Ethiopia stated that preceptor training is crucial in providing effective mentorship for clinical pharmacy clerkship students during their clinical rotations (Belachew et al., 2016).

The scoping review provided a foundational understanding of the existing literature on feedback during experiential learning, outlining modes of feedback delivery, barriers and facilitators to feedback, and proposed interventions to enhance feedback mechanisms during experiential learning. By employing the findings of the scoping review to inform the development of the qualitative study's topic guide. Through this interconnected approach, the qualitative study aimed to enrich the existing literature by providing deeper insights into feedback models within pharmacy

education, thereby contributing to refining and enhancing feedback mechanisms during experiential learning for educators and prioritizing initiatives by administrators and policymakers aimed at enhancing preceptor training programs and promoting a culture of feedback.

6.2 Study Implications

Based on previous studies, there was a need to conduct a deeper analysis of preceptor and student feedback during the experiential learning. Consequently, this study described the experience of preceptors providing feedback during experiential learning of pharmacy students and preceptors. In addition, the study explored the challenges that hinder the effective implementation of the feedback session and revealed potential facilitators that should be utilized to integrate and sustain the good practice of preceptor-provided feedback. Therefore, the implications of this study's findings on practice are significant, particularly in pharmacy education and preceptorship. Firstly, the findings highlight the importance of frequent hands-on preceptor training programs, especially in feedback provision. Ensuring preceptors receive training on effective feedback techniques can enhance the quality of experiential learning experiences for pharmacy students. Furthermore, the importance of teaching and encouraging self-reflection among preceptors and students suggests the need to incorporate self-reflection in the ongoing professional development programs. Finally, the suggestion to establish a system for sharing student evaluations with preceptors can promote transparency and accountability in the preceptorship process, leading to improved teaching methods and enhanced learning outcomes. Overall, the results have implications for designing and implementing preceptor training programs and feedback processes within pharmacy education and healthcare practice sites. By

addressing these implications, colleges of pharmacy and healthcare organizations can create more effective and enriching experiential learning experiences for students.

6.3 Strengths and Limitations

The qualitative nature of the study allowed for a thorough exploration of feedback experiences during experiential learning through interviews, providing rich and detailed insights into participants' perspectives. By interviewing pharmacy students and preceptors, the study captured diverse viewpoints, enhancing the comprehensiveness of the findings and offering a deeper understanding of the barriers and facilitators influencing feedback. However, the limitations include individuals who accepted to participate are likely interested in pharmacy education or could have had a positive experience. Moreover, the interviews were conducted either face-to-face or virtually based on the participants' preferences. While both face-to-face and virtual interviews have their advantages and limitations, the implications of participants' choice on the quality and depth of the qualitative study's findings are significant. Face-to-face interviews allowed for non-verbal cues such as body language and facial expressions to be observed and interpreted. On the other hand, it's worth noting that some students might feel more confident expressing their ideas and experiences during virtual interviews. This could potentially lead to more open discussions, contributing positively to the qualitative study. Nevertheless, it is essential to note that there was no data filtering, and participants shared both positive and negative experiences. Moreover, conducting qualitative interviews can be time-consuming and resource-intensive, requiring careful planning and analysis. I conducted all aspects of this study as the sole researcher, including recruiting participants, conducting interviews, analyzing data, interpreting findings, and presenting results.

6.4 Future Studies

Future research should explore different perspectives between hospital and community settings, examining the distinct challenges and work realities encountered in each setting. Educational institutions might consider investigating hospital and community sites' practical capabilities and the need to enhance students' and preceptors' experiential learning experiences. Moreover, the impact of preceptor development programs on student experiential learning has yet to be thoroughly explored, specifically in Qatar. This will help ensure that preceptor programs are tailored to effectively meet the needs of preceptors, a critical consideration given the growing number of pharmacy students each year.

6.5 Conclusion

In conclusion, this qualitative study on feedback during experiential learning has shed light on the perceptions and experiences of pharmacy students and preceptors in the context of feedback during experiential learning. The findings highlighted various themes, including the importance of constructive and empathetic communication, perceived barriers to providing feedback, facilitators of effective feedback, and proposed strategies for improvement. Addressing the identified barriers and adapting the facilitators to optimize the feedback process is crucial, ultimately enhancing the learning experience for both students and preceptors. This study underscores the need for ongoing training and support for preceptors within the professional development programs. Overall, the findings provide valuable guidance for pharmacy faculty, preceptors, administrators, and policymakers seeking to enhance feedback practices in experiential learning settings.

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APPENDICES

Appendix A. Search strategy

This scoping review should be conducted based on the following stages as outlined by Levac et al:

Stage 1: Identifying the research question.

What is known from the literature about the effectiveness and quality of preceptor feedback on health care professional students (medical, nursing, pharmacy)?

Stage 2: identifying relevant studies.

Inclusion criteria
Primary research studies of any design conducted with pharmacy preceptors which report details of the pharmacy student and preceptor feedback.
Language: English

Exclusion criteria:
Review articles, letters, opinion papers and editorials will be excluded.

Concept 1:

Pharmacy student OR PharmD student OR pharmacy resident OR pharmacy fellow OR pharmacy trainee OR Bpharm OR MPharm

Concept 2:

Feedback OR Formative feedback

Concept 3:

Experiential education OR experiential teaching OR clinical rotation OR internship OR residency OR fellowship* OR bedside teaching OR clerkship OR clinical clerkship OR workplace based learning

Total: 1343

Table A1. Pubmed

Search number	Query	Results
4	(((Pharmacy student OR PharmD student OR pharmacy resident OR pharmacy fellow OR pharmacy trainee OR Bpharm OR MPharm) AND (Feedback OR Formative feedback)) AND (Experiential education OR experiential teaching OR clinical rotation OR internship OR residency OR fellowship OR bedside teaching OR clerkship OR clinical clerkship OR workplace based learning)	387
3	Experiential education OR experiential teaching OR clinical rotation OR internship OR residency OR fellowship OR bedside teaching OR clerkship OR clinical clerkship OR workplace based learning	535,735
2	Feedback OR Formative feedback	194,420
1	Pharmacy student OR PharmD student OR pharmacy resident OR pharmacy fellow OR pharmacy trainee OR Bpharm OR MPharm	28,807

Table A2.Web of Science

Search number	Query	Results
4	(#1) AND (#2) AND (#3)	248
3	Experiential education OR experiential teaching OR clinical rotation OR internship OR residency OR fellowship OR bedside teaching OR clerkship OR clinical clerkship OR workplace based learning (All Fields)	1,231,159
2	Feedback OR Formative feedback (All Fields)	642,719

1	Pharmacy student OR PharmD student OR pharmacy resident OR pharmacy fellow OR pharmacy trainee OR Bpharm OR MPharm (All Fields)	30781

Table A3. Embase

Search number	Query	Results
3	('pharmacy student'/exp OR 'pharmacy student' OR (('pharmacy'/exp OR pharmacy) AND ('student'/exp OR student)) OR 'pharmd student' OR (pharmd AND ('student'/exp OR student)) OR (('pharmacy'/exp OR pharmacy) AND resident*) OR (('pharmacy'/exp OR pharmacy) AND fellow*) OR (('pharmacy'/exp OR pharmacy) AND trainee*) OR bpharm OR mpharm) AND (feedback OR (formative AND feedback)) AND (experiential AND education OR (experiential AND teaching) OR (clinical AND rotation) OR internship OR residency OR fellowship* OR (bedside AND teaching) OR clerkship OR (clinical AND clerkship) OR (workplace AND based AND learning))	438
2	('pharmacy student'/exp OR 'pharmacy student' OR (('pharmacy'/exp OR pharmacy) AND ('student'/exp OR student)) OR 'pharmd student' OR (pharmd AND ('student'/exp OR student)) OR (('pharmacy'/exp OR pharmacy) AND resident*) OR (('pharmacy'/exp OR pharmacy) AND fellow*) OR (('pharmacy'/exp OR pharmacy) AND trainee*) OR bpharm OR mpharm) AND (feedback OR (formative AND feedback))	1,952
1	'pharmacy student'/exp OR 'pharmacy student' OR (('pharmacy'/exp OR pharmacy) AND ('student'/exp OR student)) OR 'pharmd student' OR (pharmd AND ('student'/exp OR student)) OR (('pharmacy'/exp OR pharmacy) AND resident*) OR (('pharmacy'/exp OR pharmacy) AND fellow*) OR (('pharmacy'/exp OR pharmacy) AND trainee*) OR bpharm OR mpharm	38,540

Table 4A. Academic Search Ultimate (EBSCO)

Search number	Query	Results
4	(Experiential education OR experiential teaching OR clinical rotation OR internship OR residency OR fellowship OR bedside teaching OR clerkship OR clinical clerkship OR workplace based learning) AND (Feedback OR Formative feedback) AND (Pharmacy student OR PharmD student OR pharmacy resident OR pharmacy fellow OR pharmacy trainee OR Bpharm OR MPharm)	69
3	Experiential education OR experiential teaching OR clinical rotation OR internship OR residency OR fellowship OR bedside teaching OR clerkship OR clinical clerkship OR workplace based learning	114,764
2	Feedback OR Formative feedback	215,530
1	Pharmacy student OR PharmD student OR pharmacy resident OR pharmacy fellow OR pharmacy trainee OR Bpharm OR MPharm	6099

Table 5A. EBSCO (ERIC)

Search number	Query	Results
3	(pharmacy student OR pharmd student OR pharmd OR resident OR fellow OR trainee OR bpharm OR mpharm) AND (feedback OR formative feedback) AND (experiential education OR experiential teaching OR clinical rotation OR internship OR residency OR fellowship OR bedside teaching OR clerkship OR clinical clerkship OR workplace based learning)	130
2	(pharmacy student OR pharmd student OR pharmd OR resident OR fellow OR trainee OR bpharm OR mpharm) AND (feedback OR formative feedback)	983
1	pharmacy student OR pharmd student OR pharmd OR resident OR fellow OR trainee OR bpharm OR mpharm	26,172

Table 6A. ProQuest Central

Search number	Query	Results
4	(Experiential education OR experiential teaching OR clinical rotation OR internship OR residency OR fellowship OR bedside teaching OR clerkship	71

	OR clinical clerkship OR workplace based learning) AND (Feedback OR Formative feedback) AND (Pharmacy student OR PharmD student OR pharmacy resident OR pharmacy fellow OR pharmacy trainee OR Bpharm OR MPharm) =abstract only	
3	Experiential education OR experiential teaching OR clinical rotation OR internship OR residency OR fellowship OR bedside teaching OR clerkship OR clinical clerkship OR workplace based learning	1061764
2	Feedback OR Formative feedback	1354307
1	Pharmacy student OR PharmD student OR pharmacy resident OR pharmacy fellow OR pharmacy trainee OR Bpharm OR MPharm	137188

Stage 3: study selection

Screening of the title and abstract followed by full text review.

Stage 4: charting the data.

Stage 5: Collating, summarizing and reporting the results

Appendix B. Interview guide

Interview Guide for Students

General Introduction:

- Introduce myself .
- Discuss the purpose of the study.
- Get informed consent and signature.
- Provide the structure of the interview (audio recording).
- Ask if any questions.
- Define experiential learning and feedback for participant.

Interviewee:

Time of interview:
Date:
Place:
Recording/storing information about interview:

Position of Interviewee:

Current Pharmacy Year:

How many rotations did you have?

Interview questions (with probing sub-question if needed):

What has been your experience with preceptors as pharmacy student? What did you think about your preceptors?

What do you think is the role of your preceptor?

- Probing sub-question

    1. What are the most important qualities of a preceptor?
    2. What are the methods of feedback a preceptor can use?

Can you describe your typical day with your preceptor? (What really happens during rotations)

Can you describe how you provide and get feedback as a student?

- Probing sub-question
    - What method of feedback do you use?

What do you think would be helpful for you as a student when getting feedback?

Facilitators: Tell me about your best experiences in experiential learning?

- What positive feedback did you provide and received form the preceptor?

Challenges: Tell me about your worst experiences in experiential learning?

- What are the challenges you have had in EL?
- What negative feedback did you provide and received form the preceptor?

What is the most important thing you would do to make the feedback during experiential learning?

What is something that you wish to change or improve about EL?

What is the most important thing you want me to highlight from today's interview?

Is there anything you want to talk about that we didn't talk about today?

Is there something that you thought I would ask but I didn't?

Closing Instructions:

- Assure the interviewee of confidentiality
- Let interviewee know they will have opportunity to review transcripts if desired.
- Thank the individual for participating

Interview Guide for Preceptors

General Introduction:

- Introduce myself
- Discuss purpose of the study
- Get informed consent and signature
- Provide structure of the interview (audio recording)
- Ask if any questions
- Define experiential learning and feedback for participant

Position of Interviewee:

Years of experience in precepting:

How often does the interviewee precept students and for how long per year?

Interview questions (with probing sub-question if needed):

1. How and why did you become a preceptor?

What do you think is your role as a preceptor?

- Probing sub-question

    1. What are the most important qualities of a preceptor?

Can you describe your actual duties as a preceptor? (What really happens during rotations)

- Probing sub-question

    1. What does a typical day with students look like for you?
    2. How does precepting affect your work/ personal life?

Can you describe how you provide feedback as a preceptor

- Probing sub-question

1. What method of feedback do you use?
2. Do you think. Feedback and evaluations are the same? Can you elaborate?

How did you figure out how to provide constructive feedback as a preceptor?

- Probing sub-question
    1. Did you take any formal training?
    2. How did you gain the skills as a preceptor?

What do you think would be helpful for you as a preceptor to improve your skills in providing feedback?

- Probing sub-question
    1. Suggested training?
    2. What would make you a better preceptor?

Facilitators: Tell me about your best experiences in experiential learning?

1. What have been the rewards for you in being a preceptor?
2. What makes you continue to precept?
3. What positive feedback did you provide and received form the student?

Challenges: Tell me about your worst experiences in experiential learning?

1. What are the challenges you have had in precepting students?
2. What would happen for you not to continue to precept?
3. What negative feedback did you provide and received form the student?

What is the most important thing you would do to make the feedback during experiential learning?

What is something that you wish to change or improve about EL?

What is the most important thing you want me to highlight from today's interview

Is there anything you want to talk about that we didn't talk about today?
Is there something that you thought I would ask but I didn't?
Closing Instructions:

- Assure interviewee of confidentiality
- Let interviewee know they will have opportunity to review transcripts if desired.
- Thank the individual for participating

MRC-01-23-426 E-stamped 13 Sep 2023

Appendix C. Consent form

كلية الصيدلة
College of Pharmacy
QATAR UNIVERSITY جامعة قطر

Participant Information Sheet for Students

Study Title: Perceptions of pharmacy students and clinical preceptors on feedback during Experiential Learning: A Qualitative Study

We would like to invite you to take part in a research study. Before you decide, you need to understand the purpose of research and what it would involve for you. Please take time to read the following information carefully. If you wish, you can discuss it with your friends and family. Should you need any further information, please feel free to contact us.

1. What is the purpose of the study?

The objectives are to

1. Explore the pharmacy students and preceptors' perspective of the feedback provided during experiential learning in Qatar.
2. Identify the perceived facilitators or challenges pharmacy preceptors and students experience that might have impacted their knowledge, skills, or ability to engage in experiential learning during feedback sessions.

2. Who is doing the study?

The study is funded and organized by the College of Pharmacy, QU Health, Qatar University. The project is undertaken by a postgraduate (MSc) student Dr. Dania Alkhiyami, under the supervision of Dr. Muhammad Abdul Hadi (Principal Investigator) and Dr. Ahsan Sethi.

Approved Date: June 4, 2023 Qatar University Institutional Review Board (QU-IRB)

3. Why have I been invited?

You have been invited because you are one of the students who has undertaken at least one clinical placement whilst a student at the College of Pharmacy, Qatar University. We aim to interview both clinical preceptors and students (approximately seven each).

Inclusion criteria:

- Age above 18 years old.
- Should be able to speak and understand the English language.
- QU undergraduate pharmacy student in year 3, 4, 5 and Doctor of Pharmacy program who underwent experiential learning.

Exclusion criteria:

- QU pharmacy students who don't have experience of providing or receiving feedback.
- QU undergraduate pharmacy students who missed more than 50% of the clinical rotation.
- QU undergraduate pharmacy students who were reported for academic or professional misconduct.

4. Do I have to take part?

It is totally up to you to decide. We will provide you with all the necessary information and answer all your questions related to this study. We will then ask you to sign a consent form to show that you have agreed to take part. You can withdraw from the study at any time without giving a reason. Unwillingness to participate in the study and/or withdrawal from the study will not in any way interfere with the student-instructor relationship or affect course grades assessment. This would neither affect your enrollment at Qatar University nor your rights as a student.

5. What will happen to me if I take part?

You will be invited to participate in an interview about the feedback provided during experiential learning.The interview will be held face-to-face or online on a date and time of your preference. This will run for around 45-60 minutes. During the session, you will be asked to share your perception about the provision of the feedback provided during experiential learning.

6. Will I be paid to participate in the study?

You will not be paid for taking part in the research.

7. What are the possible disadvantages and risks of taking part?

There are no risks specifically associated with participation in the study. The only possible disadvantage is the time taken, between 45 and 60 minutes, to participate in the interview.

8. What are the potential benefits of taking part?

There are no direct benefits to you by taking part in the research. However, this will help us understand the strengths and weaknesses of the current system of providing and receiving feedback during experiential learning and identify areas for improvement, if any.

9. Will my personal data collected during the study be kept confidential?

The interviews will be audio recorded with an audio recorder for the purpose to ensure all participants' perspectives are captured accurately. Any such recording will be stored anaonymously on a password-protected computer. You have the right to disagree on having the data collection session recorded. In such cases, only Hand written notes will be made by the researcher during the interview. The research team, QU-IRB and

Ministry of Public Health (MoPH) will have access to personal identifiable data and no personal identifiable data will be used in any research publications and reports. In these transcripts, and in any research document, you will be assigned with a code, to maintain the anonymity.

10. Who has reviewed and approved this study?

The study is approved by the Qatar University Institutional Review Board with the approval number……; If you have questions in relation to the ethical compliance of the study you may contact them at QU-IRB@qu.edu.qa

11. What will happen to the study results?

The study results will be published in peer-reviewed journals and presented in conferences. The results will also be part of researcher's MSc dissertation. Once a summary of the results becomes available, you may ask a copy from the Principal Investigator (details given below).

12. Contact for further information

If you require further information, please feel free to ask any questions you wish.

Principal Investigator:
Dr Muhammad Abdul Hadi
College of Pharmacy
Qatar University, Doha, Qatar
Tel: 00974 4403 5582
Email: mabdulhadi@qu.edu.

Approved Date: June 4, 2023 Qatar University Institutional Review Board (QU-IRB)

Participant Consent Form (Student)

If you agree to the participate, you will be asked to send the signed consent form to the researchers by e-mail before the interview is conducted. Before starting the interview, the investigator will confirm that the sent consent form was clear and that you understood well.

Note: Please read each statement carefully and initial each statement in the box provided

1. I confirm that I have read and understood the information sheet. ☐
2. I understand that my participation is voluntary and that I am free to withdraw at any time, without giving any reason. In this case my relationship with my instructors, academic pursuits, or assessments will not be affected ☐
3. I agree to take part in the above study. ☐
4. I give permission to record my interview. ☐
5. I give permission to regulatory authorities to access the research data for auditing purposes. ☐

_____	_____	_____
Name of Participant	Date	Signature
_____	_____	_____
Name of Researcher	Date	Signature

Approved Date: June 4, 2023

Qatar University Institutional Review Board (QU-IRB)

RESEARCH CONSENT FORM

1. Title of research

Perceptions of pharmacy students and clinical preceptors on feedback during Experiential Learning: A Qualitative Study

2. Principal Investigator

Dr. Dania Alkhiyami
Clinical pharmacist, HMC
Msc Health Professions Education Candidate - Qatar University
Supervised by Dr. Muhammad Abdul Hadi

3. Why are we inviting you to join this research?

The investigator and colleagues at Hamad Medical Corporation (HMC) and Qatar University are conducting this research.

We are inviting you to join this interview discussion because you are pharmacy students preceptor.

4. What should you know about this research?

- We will explain the research to you
- Whether or not you join is your decision (you can accept or refuse no matter who is inviting you to participate)
- Please feel free to ask questions or mention concerns before deciding, or during or after the research
- You can say yes but change your mind later
- We will not hold your decision against you

5. Who can you talk to?

If you have questions or concerns, or if you think the research has hurt you, talk to the research team at:
Dania Alkhiyami at the following email: da097962@qu.edu.qa, phone number: 55991551
If you have questions about your rights as a volunteer, or you want to talk to someone outside the research team, please contact:

- HMC-IRB Office at 4025 6410 (from Sunday to Thursday between 7:00am-3:00pm) or email at irb@hamad.qa
- QU Institutional Review Board (QU-IRB) office at 4403-5307, 4403-6676

6. Why are we doing the research?

[The purpose of the research is to explore the perspectives of pharmacy students and preceptors of the feedback provided during experiential learning in Qatar.

7. How long will the research take?

We think that you will be in the research July 2023 to December 2023.

We expect the research to last for 6 months.

8. How many people will take part?

We plan to study at least 10 students and 10 preceptors.

9. What happens if you take part?

If you agree to join, we will ask you to do the following:

You will be asked to answer few questions about the facilitators or challenges pharmacy preceptors experience that might have impacted their knowledge, skills, or ability to engage in experiential learning during feedback sessions.

10. Could the research be bad for you?

The study has no potential risks involved. However, you have the right to decline answering any questions that you feel uncomfortable answering. No identifying information will be collected (e.g., name, date of birth, contact details). All the information will be confidential and protected. There will be no costs to you for participation in this research study.

11. Could the research be good for you?

We cannot promise any benefit to you or to others from you joining this research. However, possible benefits include better understanding of the pharmacy students and preceptors' perspective of the feedback provided during experiential learning. This will add value to Qatar and worldwide, as the number of pharmacy students and graduates is increasing, and it is important to sustain effective feedback and ensure quality in experiential learning.

12. What happens to information about you?

If you agree to participate, your identity and any other personal information gathered during the study will be kept strictly confidential. This includes using a code to identify you in our records instead of using your name. We will not identify you personally in any reports or publications about this research. No individual participants will be identified in any published results. Anonymized data will be kept for a period of at least five years in password protected files on the principal researchers' password protected computers and may be used in future research.
We cannot guarantee complete secrecy, but we will limit access to information about you. Only people who have a need to review information will have access. These people might include:

- Members of the research team whose work is related to the research or to protecting your rights and safety.
- Representatives of the Ministry of Public Health Qatar who make sure the study is done properly and that your rights and safety are protected.

13. What if you don't want to join?

You can say no and we will not hold it against you. Your participation or unwillingness to participate in the study and/or withdrawal from the study will not in any way interfere with the preceptor-university relationship in any way.

14. What if you join but change your mind?

You can stop participating at any time and we will not hold it against you.

RESEARCH CONSENT FORM

Signature Page for Capable Adult

Volunteer

I voluntarily agree to join the research described in this form.

Printed Name of Volunteer

Signature of Volunteer Date

Person Obtaining Consent

I document that:

- *I (or another member of the research team) have fully explained this research to the volunteer.*
- *I have personally evaluated the volunteer's understanding of the research and obtained their voluntary agreement.*

Printed Name of Person Obtaining Consent

Signature of Person Obtaining Consent Date

Witness (if applicable)

I document that the information in this form (and any other written information) was accurately explained to the volunteer, who appears to have understood and freely given Consent to join the research.

Printed Name of Witness

Signature of Witness Date

Appendix D. HMC MEDICAL RESEARCH CENTER APPROVAL

مؤسسة حمد الطبية
Hamad Medical Corporation
HEALTH · EDUCATION · RESEARCH صحة · تعليم · بحوث

APPROVAL LETTER
MEDICAL RESEARCH CENTER
HMC, DOHA-QATAR

Date: 14 September 2023

Ms. Dania Ihssan Alkhiyami
Clinical Pharmacist
Pharmacy
Al Wakra Hospital (AWH)
Hamad Medical Corporation
Doha-Qatar

Protocol No.	MRC-01-23-426
Study Title	Perceptions of pharmacy students and clinical preceptors on feedback during Experiential Learning: A Qualitative Study
The above titled research study has been approved to be conducted in HMC summarized as below	
Study type	Clinical Research
Team Member List	Dr. Ahsan Sethi, Dr. Muhammad Abdul Hadi, Mr. Palli Valappila Abdul Rouf, Ms. Dania Ihssan Alkhiyami, Ms. Rasha Zakariya El Enany
Review Type	**'Exempt'** under MOPH guidelines **"*Category* (2) Research involving the use of:** Survey and/or interview procedures in adults only **UNLESS**: (i) information obtained is recorded in such a manner that human subjects can be identified, directly or through identifiers linked to the subjects; **AND**(ii) any disclosure of the human subjects' responses outside the research could reasonably place the subjects at risk of criminal or civil liability **OR** be damaging to the subjects financial standing, employability, or reputation.**"**
Decision	Approval
Hospitals/ Facilities Approved	Al Wakra Hospital (AWH)

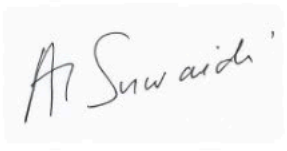
This study must be conducted in full compliance with all the relevant sections of the Rules and Regulations for Research at HMC and the Medical Research Center should be notified immediately of any proposed changes to the study protocol that may affect the 'exempt' status of this study. Wherever amendments to the initial protocol are deemed necessary, it is the responsibility of the Principal Investigator to ensure that appropriate reviews and renewed approvals are in place before the study will be allowed to proceed.

Please note that only official, stamped versions of the approved documentation are to be utilized at any stage in the conduct of this study. The research team must ensure that progress on the study is appropriately recorded in ABHATH, the online research system of the Medical Research Center.

We wish you success in this research and await the outcomes in due course.

Yours Sincerely,

Prof. Jassim Mohd. Al Suwaidi
Chief of Scientific, Academic and Faculty Affairs
Hamad Medical Corporation



Date: 14 September 2023

Appendix E. QATAR UNIVERSITY INSTITUTIONAL REVIEW BOARD

جامعة قطر
QATAR UNIVERSITY

Qatar University Institutional Review Board QU-IRB

QU-IRB Registration: IRB-QU-2020-006, QU-IRB, Assurance: IRB-A-QU-2019-0009

DATE:	June 4, 2023
TO:	Muhammad Hadi, PhD
FROM:	Qatar University Institutional Review Board (QU-IRB)
PROJECT TITLE:	1987201-1 Perceptions of pharmacy students and clinical preceptors on feedback during Experiential Learning: A Qualitative Study
QU-IRB REFERENCE #:	QU-IRB 1885-EA/23
SUBMISSION TYPE:	New Project
ACTION:	APPROVED
REVIEW TYPE:	Expedited Review
DECISION DATE:	June 4, 2023
REVIEW CATEGORY:	Expedited review category # 6 & 7

Thank you for your submission of New Project materials for this project. The Qatar University Institutional Review Board (QU-IRB) has APPROVED your submission. This approval is based on an appropriate risk/ benefit ratio and a project design wherein the risks have been minimized. All research must be conducted in accordance with this approved submission.

This submission has received Expedited Review according to Qatar Ministry of Public Health (MoPH) regulations. This project has been determined to be a MINIMAL RISK project.

Please remember that informed consent is a process beginning with a description of the project and insurance of participant understanding followed by a signed consent form. Informed consent must continue throughout the project via a dialogue between the researcher and research participant. Qatar MoPH regulations require that each participant receives a copy of the consent document.

Please note that Expedited Review approvals are valid for a period of one year and renewal should be sought prior to May 5, 2024 to ensure timely processing and continuity. Moreover, any changes/ modifications to the original submitted protocol should be reported to the committee to seek approval prior to continuation.

All UNANTICIPATED PROBLEMS involving risks to subjects or others (UPIRSOs) and SERIOUS and UNEXPECTED adverse events must be reported promptly to this office. Please use the appropriate reporting forms for this procedure.

All NON-COMPLIANCE issues or COMPLAINTS regarding this project must be reported promptly to this office.

Please note that all research records must be retained for a minimum of three years after the completion of the project.

Documents Reviewed:

- Consent Form - Participant Information Sheet and Consent Form-Student-Modified.docx (UPLOADED: 05/23/2023)
- Consent Form - Participant Information Sheet and Consent Form_Perceptor.docx (UPLOADED: 05/23/2023)

- CV/Resume - MAH_CV_short.docx (UPLOADED: 01/18/2023)
- Protocol - QHPE Thesis Poposal H-Dania.docx (UPLOADED: 01/18/2023)
- Qatar University - IRB Application - Qatar University - IRB Application (UPLOADED: 05/23/2023)
- Questionnaire/Survey - Interview Guide for Students.docx (UPLOADED: 11/15/2022)
- Questionnaire/Survey - Interview Guide for Preceptors.docx (UPLOADED: 11/15/2022)
- Training/Certification - CITI-Dr Ahsan.pdf (UPLOADED: 11/15/2022)
- Training/Certification - Dania CITI.pdf (UPLOADED: 11/15/2022)
- Training/Certification - CITI Ethics Certificate.pdf (UPLOADED: 11/15/2022)

If you have any questions, please contact QU-IRB at 4403 5307 or qu-irb@qu.edu.qa. Please include your project title and reference number in all correspondence with this committee.

Best wishes,

Prof. Emad Abu Shanab
Chairperson, QU-IRB

جامعة قطر
QATAR UNIVERSITY
Institutional Review Board
(IRB)
Office Of Academic Research

This letter has been issued in accordance with all applicable regulations, and a copy is retained within Qatar University's records.

Qatar University-Institutional Review Board (QU-IRB), P.O. Box 2713 Doha, Qatar
Tel +974 4403-5307 (GMT +3hrs) email: QU-IRB@qu.edu.qa