



Research article

## Using reflection to evaluate student learning in ambulatory care IPPEs

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### Abstract

**Purpose:** Gather insight from student pharmacists about what they learned and whether objectives of an introductory pharmacy practice experience (IPPE) were achieved in an academic-based ambulatory care site.

**Methods:** Students wrote post-reflective essays after their first ambulatory care-site visit. They reflected upon their previous assumptions of ambulatory care, and the roles and skills required of pharmacists in this setting. Additionally, students ranked their interest in ambulatory care pre- and post-IPPE. Post-reflection essays were analyzed for recurring themes using a constant comparison method and a respondent validation method was employed to confirm these findings. Wilcoxon signed-rank sum test was used to analyze student interest in ambulatory care and descriptive statistics were used, as appropriate.

**Results:** Overall, 70 reflection articles were analyzed. Assumptions of ambulatory care were either incorrect or proved to be more than what was expected for 60% of students. Based on the themes identified, students learned most about the collaborative practice model, chronic disease state management, and the time commitment necessary for outcomes. Regarding skills required of a pharmacist, students discussed the need for a strong knowledge base, communication, and ability to transfer these skills from one setting to another. Interest in ambulatory care increased after the site visit ( $p < 0.01$ ) and 90% of students who wrote these reflections strongly agreed or agreed with the above findings.

**Conclusions:** With intentional reflection, ambulatory care IPPEs can serve as a meaningful outlet for learning while also achieving IPPE objectives.

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**Keywords:** Ambulatory care; IPPE; Qualitative; Student pharmacists; Reflection; Meaningful learning

### Introduction

Often in the classroom, students learn information, put these to memory, and then recall these facts for tests. Learning with understanding and the transfer of learning are even more important and imperative for students to develop competencies as a pharmacist. In order for effective understanding and transfer to take place, opportunities for

students to see and apply knowledge in multiple contexts must be provided, so that they can understand how skills and problem-solving strategies are applied outside the classroom, namely in the real world.<sup>1,2</sup> Because of this, pharmacy accreditation standards initiated in 2007 required 300 hours of IPPE (introductory pharmacy practice experience) in the first three years of the professional pharmacy curriculum.<sup>3</sup> As a result, colleges and schools of pharmacy have created a wide variety of IPPE experiences; however, little evidence exists as to whether these experiences are actually meaningful to students.

Reflection has been defined as a form of mental processing used to determine the fulfillment of a purpose

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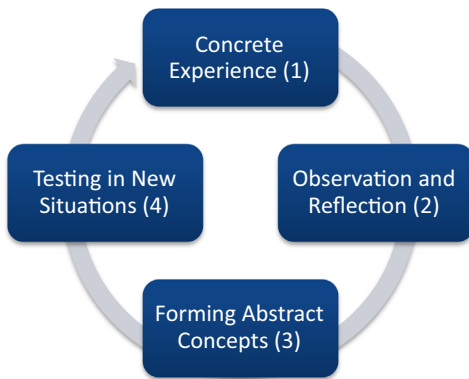


Fig. Kolb's experiential learning cycle.

or achievement of some anticipated outcome.<sup>4</sup> Reflection has also been defined as reconstruction or reorganization of experience and some believe that experience is not experience unless some level of reflection has been performed.<sup>5</sup> This reflection is an essential step in completion of the experiential learning cycle as depicted by Kolb<sup>6</sup> (Fig.). Reflection and reflective writing about practice experiences are valued within health care professions because these skills can be used as a strategy to develop meaningful learning.<sup>7</sup> In medical education, reflection and reflective writing have been used for over a decade. These reflections have been used to assess student professionalism, empathetic interactions, and communication skills in various specialties including, among others, pediatrics, obstetrics–gynecology, surgery, geriatrics, hospice, and palliative care.<sup>8–11</sup>

In pharmacy education, although not as readily used, reflection has shown to improve students' critical-thinking skills, and reflective writing has allowed students to document achievement of multiple ability-based outcomes.<sup>7</sup> Vaughn et al.<sup>12</sup> used reflection articles with an interprofessional (medicine and pharmacy) home visit centered on evaluating medication-related problems and found both disciplines perceived an improvement in confidence regarding communication skills, both with patients and with other health professions students. Very few qualitative studies using reflection in pharmacy education exist and none specifically to assess IPPE learning objectives.<sup>13–16</sup>

Ambulatory care pharmacy practice has been defined as the "... provision of integrated, accessible health care services by pharmacists who are accountable for addressing medication needs, developing sustained partnership with patients, and practicing in the context of family and community."<sup>17</sup> It is a broad field that includes both community pharmacy as well as clinical outpatient-based settings.<sup>18</sup> While an undefined number of pharmacists work in a clinical outpatient-based setting, it is known that approximately 61% of pharmacists practice in a community pharmacy setting.<sup>19</sup> This means that more than two-thirds of all pharmacists need to develop strong ambulatory care skills. With such a large percentage of pharmacy students

eventually practicing in an ambulatory care setting, it is imperative to determine what students are gaining or learning from their ambulatory care IPPE site visits. The primary objective of this study was to use reflective essays to gather insight from student pharmacists about what they learned after observing patient care in an ambulatory care setting and whether objectives of the IPPE were met.

## Methods

The experiential site is a chronic disease state management clinic housed within an academic-based patient centered medical home. This pharmacist-run clinic primarily provides care for patients on warfarin therapy and/or with diabetes. Seven rotating pharmacy preceptors manage this clinic while also providing experiential learning opportunities. Students also interact with attending physicians, a dietician, and a community health worker located at the site. The clinic provides an IPPE to first through third year pharmacy students year round, as well as fourth-year students as a two-month advanced pharmacy practice experience (APPE). The experiential department assigns students to this site, but it is not mandatory for all students. These students are assigned in either the spring of their first year (when IPPEs begin) or in the fall of their second year. The concept of ambulatory care is introduced in the spring of P1 year within the topic of medication therapy management (MTM). Concepts discussed include finding, clarifying, and addressing drug-related problems, as well as the value of continuous patient relationships. Those interested in practicing in clinical ambulatory care after the initial visit are encouraged to rank this same site high when submitting preferences for IPPE and APPE to increase the likelihood of returning. For those assigned back to the clinic, goals and objectives of each subsequent visit encompass more concepts of ambulatory care, and skills are utilized more with each visit. The described activity in this study focuses only on first- and second-year students experiencing their initial, 4-hour (consecutive) IPPE in this ambulatory care clinic. During this initial site visit, students observed patient care and participated in discussion with preceptors about ambulatory care. The goal for all IPPE students visiting the site for the first time was to expose them to the ambulatory care setting, introduce them to what pharmacists do in this setting, and observe the skills required to function in this type of setting. Objectives included to "state what an ambulatory care setting is" and "identify the role of a pharmacist in an ambulatory care setting."

All students were assigned to one of seven preceptors and given a pre- and post-reflection assignment assessing what they experienced at this ambulatory care site visit. Pre-site visit instructions asked students to reflect upon the following four items: (1) what their thoughts and assumptions of ambulatory care were; (2) what perceptions they had about the role of pharmacists in the ambulatory care setting; (3) what their thoughts and assumptions were

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