

7-2012

# Individualized Reflective Learning Through Portfolio Use in Pharmacy School Education

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### Publication Information

Lull, Melinda E.; Mathews, Jennifer; Utter, C. R.; and Bova, R. J., "Individualized Reflective Learning Through Portfolio Use in Pharmacy School Education" (2012). *Pharmacy Faculty Publications*. Paper 18.

[http://fisherpub.sjfc.edu/pharmacy\\_facpub/18](http://fisherpub.sjfc.edu/pharmacy_facpub/18)

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# Individualized Reflective Learning Through Portfolio Use in Pharmacy School Education

## **Abstract**

**Objectives:** The ability to teach one's self is a skill that will greatly enhance students in their future professional lives. To this end, learning portfolios have often been used longitudinally as a development tool. The objective of this study was to design and implement the use of an electronic portfolio to individualize student learning experiences in a one-semester pharmacy elective course.

**Methods:** In a forensic toxicology pharmacy elective course, students were asked to find specific articles related to lecture material but geared toward their individual interests, attach it to an online portfolio, and answer four short reflective questions. Students then brought the assignments to class and discussed their findings in small groups. The portfolios were maintained throughout the semester and were graded for completeness only. At the end of the semester, students were asked to participate in a survey rating the relevance, usefulness, productiveness, and overall impression of the portfolios using a Likert scale of 1-5 (1= strongly disagree; 5= strongly agree).

**Results:** Students responded portfolio assignments were a productive use of time (4.29/5), relevant to the course (4.71/5), a good way to individualize the course (4.71/5), provided a good basis for discussion (4.57/5), and would recommend use of portfolios in the course in the future (4.6/5).

**Implications:** The use of individual portfolios helped to promote self-learning within an elective course in pharmacy school. As students were evaluated only for completeness, students felt able to reflect freely on the topics they chose, promoting fruitful discussion and an effective learning environment.

## **Disciplines**

Pharmacy and Pharmaceutical Sciences

## **Comments**

Poster presented at the American Association of Colleges of Pharmacy Annual Meeting in Kissimmee, Florida, in July 2012.



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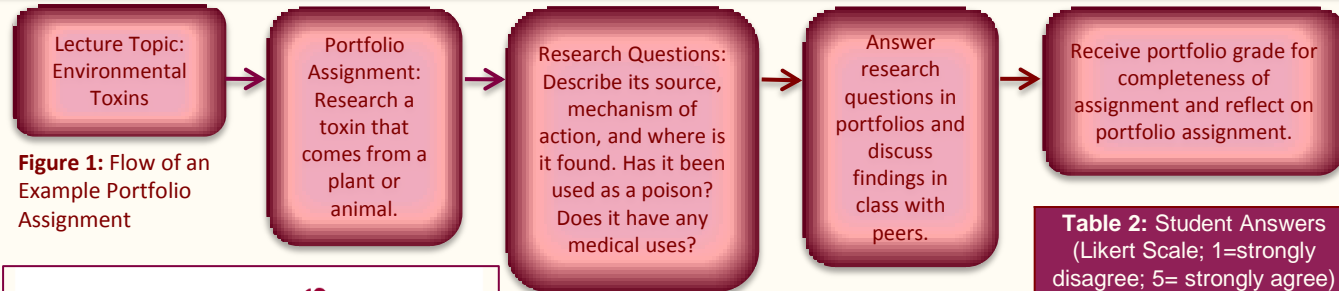
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## Introduction

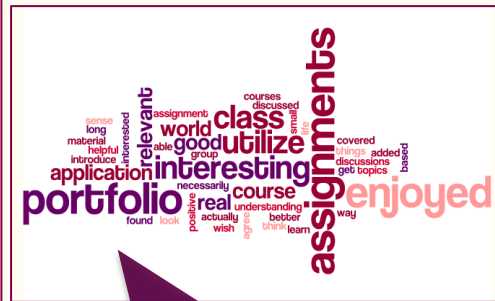
The ability to teach one's self is a skill that will greatly enhance students in their future professional lives. To this end, learning portfolios have often been used longitudinally as a development tool. The objective of this study was to design and implement the use of an electronic portfolio to individualize student learning experiences in a one-semester pharmacy elective course.

## Methods

Assignments given to students were based on lecture material covered during classes throughout the semester of a Forensic Toxicology pharmacy elective course. An example assignment was to research a toxin derived from a plant or animal after a lecture was given on natural toxins (Figure 1). Students found one specific to their individual interests, attached it to their online portfolio, and answered 4 questions about it (describe its contents, why the specific topic was chosen, how it related to the topic covered in class, and what the most interesting piece of information was). Students then brought the assignments to class, formed small groups, and discussed their findings. The portfolios were maintained throughout the semester and were graded for completeness only. At the end of the semester students were asked to participate in a survey rating the relevance, usefulness, productiveness, and overall impression of the portfolios using a Likert scale of 1-5 (1= strongly disagree; 5= strongly agree) (Table 1).



**Figure 1:** Flow of an Example Portfolio Assignment



**Figure 2:** Student Comments from Response Survey



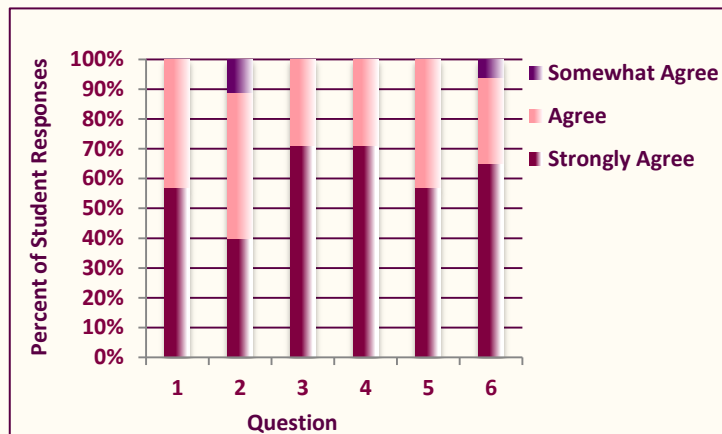
**Table 2: Student Answers**  
(Likert Scale; 1=strongly disagree; 5= strongly agree)

Question	Average Survey Score (±SEM)
1	4.57 ± 0.50
2	4.29 ± 0.67
3	4.71 ± 0.46
4	4.71 ± 0.46
5	4.57 ± 0.50
6	4.60 ± 0.60

**Student-led Class Discussion**

## Figure 3: Student Response to Survey Questions

Using the Likert Scale of 1-5 (1=strongly disagree; 5= strongly agree), students rated the assignments using questions 1-6 in Table 1. 100% of the students somewhat agreed, agreed, or strongly agreed with all questions.



**Table 1: Portfolio Survey Questions**

Q1. The use of portfolio assignments helped me to learn about additional topics not specifically covered in class.
Q2. Portfolio assignments were a productive use of my time.
Q3. The topics covered by portfolio assignments were relevant to the course
Q4. The use of portfolios was a good way of individualizing the course.
Q5. Portfolio assignments provided a good basis for small group and class discussions.
Q6. I would recommend using portfolio assignments in this course in the future.

## Results and Implications

Students responded portfolio assignments were a productive use of time (4.29), relevant to the course (4.71), a good way to individualize the course (4.71), provided a good basis for discussion (4.57), and would recommend use of portfolio assignments in the course in the future (4.6) (Figure 3; Table 2). Open-ended comments also showed favorable outcomes (Figure 2).

The use of portfolio assignments as evaluated by student impressions, helped to promote self-learning within an elective course in pharmacy school. As an adjunct to traditional lecturing, students individualized broader topics to suit their specific interests. As they were evaluated only for completeness, students felt able to reflect freely on the topics they chose, promoting fruitful discussion and an effective learning environment.