

Innovation in Pharmacy Education
Developing and Assessing an Innovative Model of Student Led Education

Study Grant Report Presentation

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Part 1
Developing an Innovative Model of Pharmacy Student led Elementary Science Education

The Beginnings!


Volunteer Project

Background

- **Program Design and Planning**
 - What is Lothrop Elementary Science Stars (aka "Lothrop")?
 - How did we get started?
 - What opportunities do we provide for UNMC COP students?
- **Program Implications**
 - What are the benefits of the program?
 - What is the future of the program?

What is Lothrop?

- Lothrop Elementary is a magnet school for science, technology, and Spanish.
- The student population is socioeconomically and racially diverse. Most students are from north Omaha.
- Our program provides pharmacy student-led science instruction to kindergarten-4th graders.



How did we get started?

- Collaboration between UNMC faculty, student co-coordinators, Area Health Education Center (AHEC), and the Lothrop science coordinator
- Student co-coordinators developed lesson plans and schedules with Lothrop coordinator
- Student co-coordinators then recruited student volunteers and oriented them to the program



What opportunities do we provide to UNMC COP students?

1. **Hands on Lessons, 4-5 hourly lessons/semester**
 - Pharmacy students present science based lectures and interactive activities over a variety of topics.
 - Topics: layers of the earth, nutrition, recycling, plants
2. **Anatomy Club, 4-5 hourly lessons/semester**
 - Pharmacy students assist the Lothrop science coordinator in the dissection of various animals including grasshoppers, starfishes, frogs, sheep's heart, sharks & worms.
3. **Chemistry Club, 4-5 hourly lessons/semester**
 - Pharmacy students led a small group of students in activities on chemistry topics including elemental bingo and molecule building.
4. **Special one-time projects**
 - Science fair judging, teaching how to present science fair projects, and helping with the school greenhouse.

What are the benefits of the program?

- Public speaking skills
- Leadership skills
- Fulfilling community service requirements
- Interaction with smart, eager to learn and fun kids
- Making a difference in the community
- Being a role model to future generations



What is the future of the program?

- The plan is to continue the UNMC – Lothrop collaboration.
- New coordinators will continue to organize lessons and plan the schedule.
- Future lesson ideas include nutrition, exercise, poison safety, and introduction to health careers.



Co-Coordinator Reflections

- Starting the program.
- Organizing schedules and lessons.
- Recruiting and orienting volunteers.
- Influences of pharmacy students on Lothrop students.
- Influence of Lothrop students on pharmacy students.
- Influence on future career plans as pharmacy educators.

Part 2 Assessing an Innovative Model of Pharmacy Student led Elementary Science Education



Research Project

Background

- A growing concern of many colleges of pharmacy across the United States is the shortage of motivated community pharmacy faculty members in academia.¹
- The American Association of Colleges of Pharmacy (AACP) has identified faculty recruitment and retention as a top priority.¹

¹ Vacant budgeted and lost faculty positions - academic year 2006-2007. AACP Institutional Research Brief Volume 6. Available at: http://aacp.org/Docs/MainNavigation/InstitutionalData/8695_IRBNo8-Facultyvacancies.pdf Accessed March 19, 2008.

Rationale

- Service experiences may be a potential route to enhance student interest in pursuing a career in teaching.
- Service experiences have highlighted the value of community-academic partnerships and have gained recognition as models to develop community-oriented health care professionals.^{1,2}
- Service experience based innovative models of education, especially those led by students themselves, are infrequently assessed in professional pharmacy programs.

¹Buckley S, Zamora J *BMC Med Educ.* 2007;7:20
²Olm-Shipman C, Reed V, Christian JG. *Educ Health.* 2003; 16(3):339-47

Objective

- To assess general attitudes to and specific outcomes of a community-service model of pharmacy student led elementary science education of diverse elementary students.

Methods

- Two pharmacy students guided by faculty developed an educational program in collaboration with a science magnet center having a diverse elementary student population.
- First- and second- year pharmacy students volunteered to provide weekly interactive science education lessons to grades K-4 on topics including nutrition, physical science, anatomy, chemistry, and botany from January to May 2008.

Methods

- Study population characteristics
 - First and second year pharmacy students (n=19)
 - Majority female, age 20-25 years old, Caucasian, working 11-20 hours/week
 - January 2008-May 2008
- Data Collection for assessment
 - Rural Health Education Network/Area Health Education Center's General Service Learning Survey
 - Lothrop Survey
- IRB approval

Data Collection

- Rural Health Education Network/Area Health Education Center's General Service Learning Survey
 - 25 items plus open ended question
 - Pre and Post survey
 - Completed in February and May of 2008
- Lothrop Survey
 - 23 items
 - Mid-point survey (developed for this study)
 - completed in March/April 2008

Rural Health Education Network General Service Learning Survey

- Questions were asked on the following topics:
 - Student's perspective about the service-learning course (9-items).
 - Student's attitude toward community involvement (7-items).
 - The influence of service-learning on future professional work (3-items).
 - Personal reflections on service-learning experience(s) (6-items and open-ended comments).

Lothrop Survey

- Survey had 3 domains
 - Context of Lothrop Experience (7 items)
 - Skill improvement because of Lothrop Experience (11 items)
 - Future Career direction in Pharmacy because of Lothrop Experience (5 items)
- Questions were designed using a model of education based on peer tutoring program at a British medical school.¹
- Responses to questions were anchored on a 5-point Likert scale

¹Buckley S, Zamora J Med Educ. 2007;7:20

Statistical Analysis

- Differences between volunteering students' attitudes on the area health education center's pre- and post-service-learning survey were compared using Wilcoxon signed rank sum test.
- Specific outcome-related items across domains of context, skills, and career direction in pharmacy from the midpoint 23-item Lothrop survey were also analyzed.

Results and Implications

- Student volunteer's attitudes significantly ($p < 0.05$) increased "after" compared with "before" the service learning for:
 - "awareness of community needs"
 - "did not help understand course materials"
 - "should be voluntary than a course requirement"

Results and Implications

- Students agreement was highest* for specific outcome-related items across the 3 domains:
 - **Context (mean > 4.0)**
 - "volunteered" due to desires to help elementary students
 - "volunteered" because my previous teaching experiences encouraged me to do more
 - **Skills (mean > 4.0)**
 - "improved" my practical teaching skills,
 - "improved" my comfort of working with diverse populations"
 - **Future Career Direction in Pharmacy because of Lothrop service experience (mean > 3.5)**
 - would like to teach as a preceptor in my practice site in future
 - am encouraged to and explore public health positions in future

Conclusions

- Study has limitations that estimates may be affected by self-report bias, the small sample size, and absence of longitudinal assessment on outcome domains.
- An Innovative community-service model of Pharmacy student led elementary science education demonstrated student awareness of diverse community needs, comfort in diverse community engagement, and commitment to include teaching and public health in future careers.

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