

EVALUATION OF ELECTRONIC INTEGRATION OF CONTENT ON SECOND YEAR DOCTOR OF PHARMACY STUDENT LEARNING

Abstract

Objective: Evaluate the effect on campus- and distance- pharmacy students learning of electronic integration of prerequisite course information into the online content of a second year required course.

Methods: A select number of students who have successfully completed the Chemical Basis of Drug Action (PHA447) course will collaborate with the instructor to identify specific prerequisite information deemed important for understanding new topics presented in April of the spring semester. The prerequisite content will be made accessible from within the course's online content via hyperlinks and pop-up information in the lesson handout. Topics covered earlier in the semester are presented as prior years without hyperlinks and pop-up information.

Results: Campus and distance students' examination performance on topics in the spring semester of 2008 with embedded prerequisite information will be compared to performance on topics within the same semester and prior semesters with no embedded prerequisite information. The end of course evaluation will include questions seeking students' perceptions of the value of the embedded prerequisite information.

Implications: This project can potentially serve as a model to map a curriculum vertically and horizontally, to optimize the sequencing of the content, and to reiterate and integrate critical knowledge and educational outcomes.

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Statement of purpose

This project will evaluate the effect on student learning of electronic integration of prerequisite course content into the online content of a second year required course in the Doctor of Pharmacy program. Faculty often struggle to integrate important prerequisite information into their courses. This project will provide faculty a strategy to include prerequisite information into their courses, a critical step in designing effective design of instruction (Gagne, 1992).

Project design and timeline

The Chemical Basis of Drug Action course (PHA447) is a required second-year course taught in the spring semester of each year for our campus and distance students in the Doctor of Pharmacy program. The course is divided into several topics each addressing a specific class of drugs. Two sections (first section January 8 – February 12 covered the antimicrobial class of drugs and the second section April 1- May 1, 2008 covers the central nervous system (CNS) class of drugs) constituting ten 50-minute lectures each were taught by the same instructor utilizing a standardized instructional model (Alsharif and colleagues, 2005, 2008), with the exception of utilizing electronic integration of prerequisite course content into the lesson handout in the second section. Campus (n=110) and distance (n=55) students take the course at the same time. The course does not require a textbook. However, all students enrolled in PHA447 have access to the online learning materials including the lesson handout. The lesson handout is written to be descriptive and comprehensive. Students depend on the lesson handout for all course content.

Timeline	Activity
February-March 2008	A select group of students who have successfully completed the PHA447 course will collaborate with the course instructor to identify specific prerequisite information to embed within the CNS class of drugs taught in the later part of the spring semester (April 1 – May 1).
March	The students will embed the prerequisite information into the online lesson handout for the CNS class of drugs. This will be accomplished through the use of hyperlinks and pop-up information generated through the use of SoftChalk software. Students will be trained on the use of the software by the PI and Co-PI.
April 1 - May 1	Campus and distance students enrolled in the PHA447) course will complete the CNS class of drugs section of the course.
May 10 – 25	Campus and distance students' examination performance on the CNS class of drugs (included embedded prerequisite information) will be compared to the examination performance on the antimicrobial class of drugs and to students' performance who took the course in the spring of 2007 (no embedded prerequisite information). In addition, the standard end of course evaluation for the spring 2008 Chemical Basis of Drug Action course will include questions seeking students' perceptions of the value of the embedded prerequisite information. Theme analysis will be performed to compare overall course evaluation and experience to prior years and more specifically, to compare spring 2008 students' perceptions related to the second section of the course (included embedded prerequisite information) to the first section (no embedded prerequisite information).

Expected product(s) of the project

A successful outcome of this project will:

1. Serve as a model for embedding prerequisite information in courses throughout the Doctor of Pharmacy program and in the process provide a mechanism to a) map our curriculum vertically and horizontally; b) optimize the sequencing of the content; and c) to reiterate and integrate critical knowledge.
2. As part of our currently undergoing curricular renovation to ensure that our programmatic educational outcomes are congruent with contemporary pharmacy practice, this model can provide a mechanism for the next step of curricular renovation to redesign the courses within the curriculum to ensure that all educational outcomes are covered, sequenced appropriately and integrated at higher cognitive levels as the students progress in the program.
3. Serve to help our program meet the American Council on Pharmacy Education standards and guidelines including standards 9, 10, 11 and 13 and several of their guidelines.
4. Result in communications with the program's Curriculum and Assessment committees to discuss the results of the project and to identify any changes, create an action plan to implement the model and assess the outcomes for our curriculum.
5. The School of Pharmacy and Health Professions contracts with faculty from the School of Medicine to teach several courses in the Doctor of Pharmacy program curriculum. Therefore, embedding prerequisite knowledge for the Chemical Basis of Drug Action course and other courses will require collaboration with faculty in the School of Medicine. This will increase interdisciplinary collaboration between the School of Medicine and the School of Pharmacy and Health Professions.

Project Outcomes

Project outcomes will be disseminated through poster or oral presentations at the annual American Association of Colleges of Pharmacy meeting, the Educause annual meeting, the Annual Conference on Distance Teaching and Learning, and the Sloan-C International Conference on Asynchronous Learning Networks. Additionally, the investigators will submit a manuscript to the American Journal of Pharmacy Education.

Project sustainability

The investigators plan to seek resources from the School of Pharmacy and Health Professions administration to extend the embedding of prerequisite knowledge throughout the Doctor of Pharmacy curriculum. These resources will include funds to remunerate student assistants as well as participation in the SPAHP Student Research Program. Given the current efforts to renovate the Doctor of Pharmacy curriculum, the investigators believe the likelihood of receiving this support is very high.

Additionally, the investigators plan to seek funding from the Fund for the Improvement of Post-Secondary Education (FIPSE) to further develop the model of embedding prerequisite knowledge into online learning materials.

Budget:

Amount	Purpose
\$1200	Remuneration for students who collaborate with the course instructor to identify specific prerequisite learning materials to embed within the CNS section and who will embed the prerequisite information. \$10.00/hour x 120 hours
\$800.00	2 SoftChalk software licenses. SoftChalk provide the ability to create pop-up course content including text narrative information, quizzes, and hyperlinks.
\$2000.00	Total

References:

Alsharif, N.Z. and Kimberly A. Galt. Effectiveness of an Instructional Model to Teach Clinically Relevant Medicinal Chemistry in a Campus and Distance Pathway. *AJPE*. 73(?), Article ?, 2008. Accepted.

Alsharif, N.Z., Galt, K, Mehanna, A, Chapman, R and Ogunbadeniya, A.M. Instructional Model to Teach Clinically Relevant Medicinal Chemistry. *AJPE* 70(4), Article 90, 2006.

Gagne, R., Briggs, L. & Wager, W. (1992). *Principles of Instructional Design* (4th Ed.). Fort Worth, TX: HBJ College Publishers.