

INSTRUCTIONAL DESIGN AND ASSESSMENT

A Pilot Common Reading Experience to Integrate Basic and Clinical Sciences in Pharmacy Education

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Objective. To use a common reading experience that engages students in academic discourse both before and during a PharmD degree program and introduces students to basic science and ethical foundations in health care.

Design. First-year (P1) pharmacy students were assigned a nonfiction text to read during the summer prior to admission to be followed by facilitated discussions. Activities using the text were integrated into the first-year curriculum. Pre-experience and post-experience student and faculty survey instruments were administered.

Assessment. Students and faculty members reported that 3 first-year courses used the text. Students noted that the text's historical perspective enhanced their understanding of both healthcare delivery and clinical research. Most students (78%) recommended continuation of the common reading experience activity.

Conclusion. Students and participating faculty members found the common reading experience, which provided a hub for discussion around issues such as health literacy and ethical treatment of patients, to be a positive addition to the curriculum. Future intentions for this project include expansion across all healthcare colleges at the university.

Keywords: common reading experience, ethics, cultural competence, basic science, clinical science, curriculum

INTRODUCTION

Common reading experiences have increasingly become a staple for incoming freshman at many universities over the last few decades.¹ In these assignments, matriculating students read and discuss a text with peers and faculty members in forums intended to foster conversation about controversial issues. In some schools, the program is an integral part of orientation activities, and recently, undergraduate institutions have used common reading experiences as initial events in a series of activities that include films, plays, and library exhibits. Common reading experiences are expected to encourage intellectual discourse among participants and promote higher academic standards.² Detractors of common reading experiences often criticize book selection committees for choosing texts that appear to further liberal causes, do not challenge the reader, or attempt to mitigate the low academic standards found in secondary education systems

in a "shotgun" approach.¹ In undergraduate systems, success of the common reading experience is a frequently measured metric, as reflected by reductions in the dropout rate between the first and second years of college.³

Given that students entering healthcare professional schools typically have several years of undergraduate education that may culminate in a degree, common reading experiences in a healthcare degree program may have fundamentally different goals than that of their undergraduate counterparts. Literary review has long been used in medical schools to "humanize" the foundational science courses.⁴ The University of Durham in England established a Centre for Arts and Humanities in Health and Medicine, and the University of Massachusetts-Worcester Medical School has used reading programs for the last 9 years.^{5,6} Some reading programs in healthcare colleges have encouraged students to reflect on uncommon life situations, issues of diversity, or the definition of "families."⁷ Few medical, nursing, or pharmacy schools or colleges use a defined common reading experience, but some medical schools use book-club formats (University of Massachusetts, Yale, Columbia). Regardless of the design used, reflective reading of narrative literature in training healthcare providers may lead to

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increased ethical and compassionate treatment of patients by using a “hidden” curriculum to shape thinking processes and awareness of the future provider.^{4,7}

In the fall of 2010, the University of Kentucky initiated a pilot common reading experience for incoming first-year pharmacy (P1) students. The pilot was designed to be a novel methodology of using a summer reading assignment to introduce basic and clinical sciences outside and independent of the core curriculum. This activity was intended to establish a culture of thoughtful academic discourse, introducing students to ethics in health care, raising awareness of disparities in healthcare delivery, and encouraging open and instructive relationships between students and faculty members.

The book selected for this trial was *The Immortal Life of Henrietta Lacks* by Rebecca Skloot. The text is a non-fiction account of the struggles of a poor, African-American woman from Virginia who was diagnosed with cancer in the 1950s. The book documents Henrietta’s struggles with the healthcare system, the unauthorized use of her cancer cells for science, and the effect of these events on her extended family. The book never specifically mentions a pharmacist or healthcare team but satisfied all of the intended objectives of this common reading experience. Active discussion and reflection centered on the concepts of health disparities, ethical principles, and basic science found in the text were expected to encourage students to embrace foundational classes in the first-year curriculum, engage them in meaningful conversations with peers and faculty members, and help develop a sense of compassionate care. The objective of this work was to design and assess a common reading experience that introduces concepts related to ethics in healthcare and research, basic science concepts, health disparities, and health literacy.

DESIGN

The common reading experience was designed as an innovative methodology for building a community of academically engaged student pharmacists. A proposal for the experience was presented in spring 2010 to the college curriculum committee and to the office of academic affairs for coordination of assignment dissemination and formation of discussion groups. Following approval by the curriculum committee, the common reading experience was assigned to incoming P1 students during an orientation day in May 2010. Students were informed they should obtain the text and read it prior to the formal fall P1 orientation week. During this orientation time, students were administered a survey instrument consisting of 8 questions relating to concepts and themes in the book (instrument available upon request).

Several college faculty members from practice and basic science departments and a senior student were selected and trained as facilitators during the summer in anticipation of student discussion sessions to be held in the fall. After each facilitator read the text, the group gathered to determine major themes and to formulate discussion questions. Four themes were identified that incorporated the objectives of introducing ethics in healthcare and research, basic science concepts, health disparities, and health literacy (Table 1). As a component of fall orientation, incoming students were divided into 6 groups of 20-25 individuals. Each group met for an hour with either a faculty or senior student facilitator to discuss the chosen themes. Efforts were made to ensure that all cohorts engaged in similar theme-focused discussions. Students were unaware of the preselected themes and discussion points. At the conclusion of the small-group discussion, students completed a posttest that was comprised of many of the same questions found in the pretest. Additional questions were added to the posttest instrument to better identify students who actually read the entire text (post-experience survey instrument available upon request).

A secondary goal was to extend the use of the text into the P1 core curriculum. Of the core courses within the curriculum, Physiological Chemistry and Molecular Biology, Physiology, Introductory Pharmacy Practice, and the Patient Care Laboratory seemed the most logical fits for themes found within the text and highlighted within small-group discussions. To accomplish this goal, first-year faculty members were encouraged to read the text and assimilate themes and information into their course (s). Integration examples offered to the faculty members included case studies, essays that melded course concepts with the text, and basic science applications that used

Table 1. Four Themes Discussed by Pharmacy Faculty and Students as Part of a Common Reading Experience

Could the scenario experienced by Henrietta Lacks and her family happen today? What is different today than in 1950?
Do you believe every person retains the opportunity for the same level of healthcare?
Were you surprised that the pharmacist was not mentioned in the text (mention here that pharmacists were seen but not heard)? What value to the healthcare experience could a pharmacist offer if his/her expertise were heard?
Has health literacy improved since the 1950s? Has the Internet changed health literacy?
What is informed consent (process not just a document)? Have you experienced informed consent? How would you feel if you or a family member was asked for consent for tissue for research?

HeLa cells, an immortalized cancer cell line established from Henrietta Lacks' tumor.

EVALUATION AND ASSESSMENT

The common reading experience and use of the text within the core curriculum was assessed by several means. Specific questions related to classroom use of the common reading experience were incorporated into the college's ongoing mid-semester focus groups that provided formative feedback to instructors at regular intervals. Students were asked to complete a survey instrument as a component of end-of-year curricular exit assessments. First-year faculty members were also asked to complete a survey instrument at the conclusion of the academic year regarding the extent to which they used the common reading experience within their courses.

Descriptive statistics were used for the baseline characteristics of survey respondents. For statistical analysis of pre- and post-survey data, McNemar's test was used to detect shifts in the proportion among binary responses under two different conditions involving the same group of students. For survey items with 3 categorical levels (yes/no/don't know) the Bowker's test for symmetry (an extension of McNemar's test) was used.

Pre- and Post-experience Survey Instruments

The pre-survey instrument contained 14 items that were primarily yes/no questions. There were 4 participant demographic-related questions, 2 regarding participant reading habits, and 6 core questions about cancer, tumors and research. The 6 core questions were used for the pre- and post-experience analysis. The survey instrument, which could be completed in less than 10 minutes, was administered in May 2010 at the orientation meeting of the class of 2014. The survey instrument was completed by 127 students (54 male, 73 female), for a response rate of 96%. Mean age of survey respondents was 22 ± 3.0 years, with 46% of students having a previous degree. Twenty-one percent of students had heard of Henrietta Lacks and 27% knew what HeLa cells were prior to reading the book.

The post-experience survey instrument contained 3 participant demographic questions, 3 questions regarding the assigned reading, 5 questions regarding the student perception of research and the common reading experience in relationship to their college of pharmacy experience, and the same 6 core questions for analysis. The survey instrument, which could be completed in less than 10 minutes, was administered at the conclusion of the facilitated discussion sessions. Pre-experience survey questions were repeated, along with several additional demographic and response questions. The post-experience survey instrument was completed by 129 students (51

male, 77 female, [gender not indicated for 1 respondent]), for a response rate of 97%. Mean age of survey respondents was 22 ± 3.0 years.

For 6 of the questions common to both pre- and post-experience survey instruments, 120 responses were available for paired analysis. Of the 129 students who completed the post-experience survey instrument, 2 had not attended the May orientation meeting during which the pre-experience survey instrument was administered; therefore, these responses could not be paired. The remaining 7 post-experience survey instruments could not be paired because of insufficient demographic information. Of the 120 paired respondents, 47 were male and 73 female, with a mean age of 22 ± 3.1 years. For these analyses, McNemar's test was used to assess for a shift in the proportion of binary responses under 2 different conditions among the same group of students.

Student responses to several questions changed in the post-experience survey instrument. Specifically, after reading the book and participating in small group discussions, more students (97% vs 88%) understood the characteristics that differentiate a cancer cell from a normal cell. In response to the survey item that asked students to differentiate cancer cells from normal cells, a significantly greater percentage of students were able to correctly recognize that cancer cells divide in an uncontrolled fashion ($p < 0.05$) after having read and discussed the text.

Compared with 63% of students in the pre-experience survey, 99% in the post-experience survey correctly responded that "cancer could be studied outside the body" ($p < 0.001$). Compared with pre-experience survey respondents, significantly more post-experience survey respondents indicated that it would be appropriate to remove a patient's tumor for research purposes without the patient's consent (2% vs 28%, respectively, $p < 0.001$).

After reading and discussing the book, significantly more students (87.5% vs 37.5%, $p < 0.001$) recognized that patients who provide tumor tissue for research typically do not receive compensation. The reading and discussion group did not significantly influence students' opinions regarding the ethics associated with stem cells and medical research ($p = 0.157$).

Among students who completed the post-experience survey instrument, most (57%) had not expected to complete a common reading experience in pharmacy school, 97% had read the assigned book, 78% recommended continuing the activity, and 73% thought the book could be used in the core curriculum. When questioned about the role of research in their careers, 47% of the class indicated they had considered a career in research, and 45% responded that the common reading experience increased their interest in exploring research as a career option.

Focus Group Feedback

As a normal component of assessment, the college conducts regular, midsemester focus groups. For the purposes of additional assessment of the common reading experience, targeted questions related to the text were added to P1-specific meetings. Twelve randomly selected P1 students volunteered to participate in focus group discussions in the fall 2010 and spring 2011 semesters. Students were specifically asked about their expectations for use of the common reading experience text in their coursework. The students responded during the discussion that the common reading experience was used “lightly or not at all” and cited their opinion that it was difficult to have ethics discussions in basic science courses. The students felt that these concepts might be more applicable to therapeutics and practice-based courses later in the curricular structure. All group members agreed that Ms. Lacks’ story was interesting, thought-provoking, and informative, and that the common reading experience should remain a requirement for incoming students.

Course Director and Lecturer Survey

At the end of the spring semester, P1 course directors and lecturers were surveyed regarding the common reading experience. Of the 27 survey instruments distributed, 8 faculty members (30%) responded. Of these, only 2 (25%) reported having incorporating concepts from the common reading experience into their course or module. When respondents were asked whether they had an opinion of the general concept of the common reading experience, 3 responded positively and suggested the common reading experience be better publicized to encourage faculty members to read and participate.

As anticipated, courses such as Physiological Chemistry and Molecular Biology, Physiology, and Introduction to Pharmacy Practice used the text, but the Patient Care laboratory class did not. In the Physiological Chemistry course, an essay was assigned that required students to recall concepts of informed consent and tissue procurement and apply this information to a hypothetical situation. Students in the Introductory Practice class, which used the text for reference and examples, were assigned to write an essay on value expectancy theories and 2-stage models of health and illness based on the book.

As a component of the College’s regular assessment plan, 120 P1 students (90%) completed an exit survey instrument using the electronic system, CoursEval (ConnectEDU, Amherst, NY) at the end of the spring semester. Using a semantic differential scale ranging from 1 to 5, on which 1 = not at all and 5 = very much, students were asked to what extent the common reading experience was integrated into each P1 course (Table 2). Students were

also asked whether reading the book changed their thought processes about science/clinical topics, ethics, and politics (Table 3). Responses to the final question regarding whether reading the book changed the students’ approach to studying science or clinical concepts had a mean score of 2.4 ± 1.2 . Twenty-four percent of the students offered free-text comments regarding the common reading experience. Several students commented that they recognized that the healthcare professional must see patient care from their own perspective as well as that of the patient. Students also commented that the book helped them reflect on the necessity of empathy in practice and reminded them that educational and class barriers can influence patient care.

DISCUSSION

The common reading experience described herein is a novel, active-learning method for introducing new student pharmacists to the intersection of basic and clinical sciences in health care. Although the college did not provide the text to students, we found that despite the difference in cost, 98% of students chose the hard copy rather than the electronic version of the text, and 97% of students reported that they read most of the book.

The *Immortal Life of Henrietta Lacks* was chosen as a text because of recent publicity (spring 2010) and the perceived benefit for students from the college of pharmacy as well as from multiple healthcare colleges at our institution. We found that students enjoyed and qualitatively benefited from the reading program. The common reading experience provided a unified entry point that allowed faculty members to engage students in discussions of ethics in science and health care, health disparities, cultural diversity, and cultural competence. The pilot also addressed Core Domain 6 in Appendix D of the Accreditation Council on Pharmacy Education (ACPE) standards 2.0 regarding ethical, professional, and legal behavior.⁸

We believe that the University of Kentucky College of Pharmacy is 1 of a small cohort of pharmacy schools and colleges that have used a common reading experience and attached outcome measures to the activity. McWhorter School of Pharmacy at Samford University used a collection of short stories to enforce concepts related to professionalism.⁹ Assessment survey instruments designed to measure the impact of these readings on perceptions among incoming students indicated that the reading assignments were a positive influence on this cohort compared with prepharmacy students who had not read the stories.⁹ At the Eshelman School of Pharmacy at the University of North Carolina, also uses a common reading experience, a facilitated book discussion is held during orientation for first-year students to explore concepts related to the

Table 2. Pharmacy Students' Responses Regarding the Extent to Which a Common Reading Experience Was Integrated Into First-Year Courses^a

Course Title	Response, %					Median	Mode	N	Mean (SD)
	1	2	3	4	5				
Introduction to Pharmacy Practice I	21	37	23	12	7	2	2	110	2.5 (1.2)
Physiological Basis for Therapeutics I	59	26	10	4	1	1	1	110	1.6 (0.9)
Physiological Chemistry and Molecular Biology I	11	15	38	23	13	3	3	110	3.1 (1.2)
Pharmacologic Basis of Therapeutics - Antibiotics	67	20	10	3	0	1	1	109	1.5 (.79)
Basic Principles of Pharmaceutical Science I - Intro to Pharmaceutical Dosage Forms	84	11	5	1	0	1	1	110	1.2 (0.6)
Nonprescription Pharmaceuticals and Supplies I	81	10	4	4	2	1	1	109	1.4 (0.9)
Patient Care Laboratory I	72	14	6	8	0	1	1	109	1.5 (0.9)
Communication and Behavioral Science	22	24	31	14	8	3	3	108	2.6 (1.2)
PHS 921: Physiological Basis for Therapeutics II	73	16	8	1	2	1	1	108	1.4 (0.8)
Physiological Chemistry and Molecular Biology II	69	18	8	4	2	1	1	108	1.5 (0.9)
Fundamentals of Therapeutics II - Nutrition, Health Promotion & Disease Prevention	80	9	9	2	0	1	1	109	1.3 (0.7)
Pharmaceutics and Biopharmaceutics II	81	13	5	2	0	1	1	109	1.3 (0.6)
Nonprescription Pharmaceuticals and Supplies II	79	12	5	3	2	1	1	109	1.4 (0.8)
Patient Care Laboratory II	75	13	5	6	1	1	1	110	1.5 (0.9)

^a Integration was rated on a 5-point Likert scale ranging from 1 = not at all to 5 = very much.

pharmacist's role in patient care (<http://www.pharmacy.unc.edu/programs/the-pharmd/new-students>). The College of Notre Dame of Maryland also uses a common reading experience for incoming students based on *The Immortal Life of Henrietta Lacks* (personal communication, Dr. Anne Lin, July 13, 2011). Although our common reading experience program is only in its second year, we have outlined in this manuscript our efforts to longitudinally measure outcomes throughout our students' educational experience.

Historically, evaluating common reading experiences or book club-type activities used in training medical professionals for quantifiable outcomes has proven to be difficult.⁴ Based on their experiences with the Program in Narrative Medicine at the College of Physicians and Surgeons at Columbia University, Charon and colleagues assert that these values are difficult to quantify.

After immersion in reading experiences, both Charon and colleagues and Macnaughton assert that participating students and their faculty should be monitored over time to measure changes in students' ability to understand patient experiences and beliefs and to continually apply ethical principles.⁵ Many medical schools and centers (eg, University of Massachusetts-Worcester, Columbia, and Yale) have adopted a book club-like format to use both historical and contemporary literature to stimulate discussions among professionals, students, and staff regarding issues in health-care, disparities in healthcare, and the art of healing. There appears to be an understanding that these common reading activities educate health professionals, regardless of whether assessment methods are used. The education and the training of medical professionals are distinguishable events and should be approached as a journey rather than a destination.

Table 3. First-Year Pharmacy Students Responses to a Survey Regarding Implementation of a Common Reading Experience Into the Doctor of Pharmacy Curriculum

Question	Response, (%)					Median	Mode	N	Mean (SD)
	1	2	3	4	5				
Has reading the book made you think differently about: (1 = not at all, 5 = very much).									
science and clinical topics?	4	9	39	35	13	3	3	110	3.4 (1.0)
ethics?	3	6	15	43	33	4	4	110	4 (1.0)
politics?	11	20	37	23	9	3	3	110	3 (1.1)
Has your approach to studying scientific or clinical concepts changed since reading the book?	28	23	31	13	5	2	3	108	2.4 (1.2)

Our common reading experience program had several limitations relative to our goals for the experience. The pre- and post-reading survey instruments were not piloted on a small group. After the experience described herein, we removed several questions from the survey instruments. Most first-year faculty members neither read concepts found in the text nor incorporated them in their courses. Responses to the end-of-year surveys of first-year faculty members suggest that course instructors could not envision how they might use the text in their classes. This may be a result of limited familiarity with the common reading experience project or insufficient communication between the faculty members and project coordinators. We acknowledge that there may be a significant learning curve as we seek faculty acceptance of a hidden curriculum involving a common reading experience.

We learned several important lessons from the facilitated discussion groups. Although we held a training session to prepare facilitators, we did not capture assessments of individual group dynamics postdiscussion for the purpose of evaluating continuity among groups. For example, we found that 1 group spent more time discussing institutional review board consent and appropriate use of tumor tissue for research purposes than did other groups. The results of the post-experience survey question concerning consent required for use of human tumor tissue may have been skewed by the members of this group. Specifically, the post-experience survey showed that 28% of students compared with 2% in the pre-experience survey thought that the patient's tumor could be removed for research without patient consent. Based on the general pattern reported by most facilitators that each group contained a few interactive students with the balance of members passively listening, our discussion groups may have been too large to actively engage all students. Future group discussions would likely benefit from a smaller group design and involvement of both a faculty and senior student facilitator to add a level of comfort. Finally, providing the discussion questions and themes to students prior to the small group activity might encourage reflection and improve both the discussion and student participation.

Our future goals include extending concepts explored in the common reading experience longitudinally through the curriculum with the fall 2010 incoming class, particularly in the law and ethics course and the laboratory sequence in the second year of study (fall 2011). We also learned from the survey instrument results that students felt themes from the book might be used successfully in the therapeutics sequence. Based on this finding, we will investigate positioning of specific

concepts in that course sequence. We will continue to use the present text for the incoming P1 class in fall 2011. Outcomes and assessment measures have been re-evaluated and modified to provide improved metrics for success, such as measuring change in students' awareness of health disparities.

A significant effort will be made in the second iteration of the common reading experience to engage more first-year course instructors in using the common reading experience as a part of formal course work. This will be accomplished through better education of course coordinators within course director meetings as well as enhanced recruitment of first-year course instructors as small-group facilitators. Size of the discussion groups will be reduced to 15 persons and each group will be co-facilitated by a faculty member and a senior student. Interest in the pilot common reading experience has quickly spread through the medical center campus at the University and plans are now underway to use the common reading experience as an interprofessional exercise, engaging students and faculty members from the colleges of medicine, nursing, dentistry, public health, and health sciences.

CONCLUSION

Common reading experiences are a novel mechanism to engage students in a reading assignment that highlights empathy, ethical behavior, and cultural competency while introducing the intersection of basic science and healthcare. The pilot common reading experience used in this study was well-received by students and faculty members and could easily be adopted by other schools and colleges. As our program continues to undergo improvements in process and assessment, we anticipate incorporation of common reading experience concepts throughout the core curriculum. Future plans also involve integrated expansion of the common reading experience to include most every healthcare college at the University of Kentucky using interprofessional activities to improve both communication and awareness of cultural diversity in healthcare.

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