Improving Student Understanding of Health Literacy through Experiential Learning

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ABSTRACT
Low health literacy is a pervasive yet under-appreciated issue in contemporary healthcare. It has a significant impact on cost and quality indicators, and affects patients and professionals along the entire care continuum. Educators must sensitize healthcare administration students to the complexity of low health literacy, and teach strategies to address it. This project combined conceptual and experiential approaches to increase students' sensitivity to low health literacy by combining: (1) classroom discussion of health literacy; (2) healthcare environmental assessment; (3) interviews with healthcare administrators; (4) analysis of healthcare documents that patients use; and (5) reflections on the students' experiences, both individually and as a group. Students learned that awareness of and appreciation for issues around health literacy have the potential to improve the quality of patient care and patient outcomes. Experiential learning is the key to teaching students about health literacy. This pedagogical approach increases students' understanding of the patient experience and the challenges that low health literacy poses for all participants in the healthcare system.

INTRODUCTION
Low health literacy is a critical healthcare issue that impacts every patient and healthcare professional. Healthy People 2010, our national health agenda, has two overarching goals: (1) to increase the quality and years of healthy
life; and, (2) to eliminate health disparities (United States Department of Health and Human Services, 2000). Essential to achieving these goals is improving patients’ understanding of their own health. Understanding the complexity of the structures and processes of today’s healthcare delivery systems poses a significant challenge for all of us. Opaque bureaucracy, arcane jargon, and the impersonal, intimidating atmosphere so prevalent in today’s healthcare delivery settings are daunting even to well-informed patients, especially when their personal health concerns increase their anxiety and vulnerability.

These difficulties are exacerbated for the approximately 90 million Americans thought to have low health literacy. The implications of low health literacy are enormous: as many as one-third of all American adults may lack the necessary skills to understand and act on health information and to navigate successfully our very complex and highly literate healthcare system. Low health literacy is one of the most pervasive yet under-appreciated issues in contemporary healthcare. It has a significant impact on cost and quality indicators, and affects patients and professionals along the entire care continuum (Institute of Medicine, 2004).

As educators, we must raise our students’ awareness of and appreciation for the impact of low health literacy on patient and organizational outcomes. We must help students understand the issues and value the importance of ensuring that all patients are able to access, understand and use health information effectively. How do we teach health literacy? One approach, based on Kolb’s Experiential Learning Model (1984), is to expose students to the real-life challenges faced by patients as they attempt to navigate the healthcare system.

When students in health disciplines experience first hand the complexities of the healthcare delivery system, discuss the issues of health literacy with healthcare administrators, and evaluate the array of written material given to patients, they get a glimpse into the depth and breadth of the demands placed on patients with low health literacy. This project combined conceptual and experiential approaches to increase sophomore level undergraduate students’ sensitivity to this issue.

**BACKGROUND**

The definition of health literacy that guided the project appears in Healthy People 2010: “the degree to which individuals have the capacity to obtain, process, and understand basic health information and services needed to make appropriate health decisions” (United States Department of Health and...
Human Services, 2000). We selected this definition because it suggests that health literacy is broader than mere functional literacy. Health literacy also involves accessing health information, understanding verbal instructions, computing medication doses, navigating complex delivery systems, and being a full partner in health decisions. Health literacy is not only related to educational attainment but is also mediated by culture, language and the healthcare delivery system itself (Ratzan, 2001).

The issue is especially important in light of a growing body of literature that links health literacy with a variety of clinical and financial outcomes. For example, several studies have examined the relationship between health literacy and knowledge of disease conditions and self care requirements. These studies suggest that there is a positive relationship between health literacy and knowledge about certain chronic conditions, including asthma (Williams, Baker, Honig, Lee & Nowlan, 1998), diabetes, hypertension (Williams, Baker, Parker & Nurss, 1998) and HIV (Kalichman & Rompa, 2000; Kalichman, Rompa & Cage, 2000; Kalichman et al., 2000; Miller et al., 2003). Patients with chronic illnesses, compounded by low health literacy, are less likely to understand fully their disease condition, and are less likely to have the knowledge and skills needed to manage their care effectively and independently.

In addition to having less knowledge about disease conditions and self-care requirements, some studies have demonstrated that patients with low health literacy also experience worse clinical outcomes. Schillinger and colleagues (2002) found that patients with low health literacy had worse glycemic control; the HbA1c increased by 2% for every one-point decrease in the literacy score as measured by the Short Test of Functional Health Literacy in Adults (S-TOFHLA). The relationship between health literacy and control of HIV infection has also been reported. Kalichman, Benotsch, Suarez et al (2000) found that patients with better reading comprehension were more likely to have an undetectable viral load than those with worse reading comprehension.

Not surprisingly, research also suggests that there are significant cost implications in caring for the population with low literacy. In a study of a group of non-pregnant Medicaid recipients, patients with a reading level at or below third grade had higher average Medicaid charges than those who read at above the third grade level (Baker et al., 2002). Other researchers have demonstrated that lower literacy levels were associated with a greater risk of hospitalization (Weiss & Palmer, 2004).

In summary, research suggests an association between health literacy and important clinical and financial outcomes. We need to sensitize our
students to the challenges of providing effective care for the vulnerable low health literacy population. Doing so not only requires attending to pertinent aspects of the clinical encounter, but also includes taking into account factors that help—or hinder—the patient’s ability to navigate our complex, and highly literate, care delivery system.

Experiential Learning

David Kolb’s (1984) experiential learning model provided the framework for our health literacy project. Kolb’s model has been applied successfully to a variety of other educational activities including gerontology (Holbert, 1988), linking theory and clinical education (Papai, 1999), and service learning (Eyler, 2002). Using Kolb’s learning cycle (which includes concrete experience, reflective observation, forming abstract concepts, and testing in new situation), we designed the assignment so students would have a “direct encounter” (Brookfield, 1983) with health literacy. Our aim was to deepen students’ insights and provide a context for them to engage in their work in the healthcare system in a manner that assessed their clients’ understanding of health information. Students experienced navigating the healthcare environment, wrote a personal reflection, and then gathered in a group to share and process their observations and to comprehend abstract concepts. Debriefing and use of the reflective learning process are effective learning activities and essential to experiential learning outcomes (Brackenreg, 2004). This learning experience provided valuable insights which allowed students to test their new knowledge as they progressed through the curriculum. We sought to supply students with significant and lasting learning to enable them to be more effective healthcare system professionals.

Health Literacy Project

Our goal was to expose healthcare management and policy students in the early years of their undergraduate program to the realities of the healthcare delivery system as experienced by patients in order to raise their awareness of the critical role of health literacy (See Appendix 1). Fourteen sophomore level students, working in pairs, self-selected to be part of the project team, which included settings such as acute care, primary care, and specialty services in urban healthcare systems.

The project assignment consisted of five parts: (1) classroom lecture and discussion about the concepts and issues of health literacy; (2) healthcare environmental assessment of signage for patients to locate appointment destinations (see Appendix 2); (3) interviews with healthcare administrators to discuss their experiences and perspectives (Appendix 3); (4) analysis of
healthcare documents that patients must use, such as: intake forms, procedure preparation, home care instructions, consent forms, and health education materials (see Appendices 4 and 5); and (5) reflection on the experiences, both individually and as a group.

First, all students participated in a two hour lecture on health literacy. The overall objectives of the lecture were to:

- Increase students' awareness of the literacy requirements imposed on patients when they receive healthcare and the overall complexity of our healthcare system
- Increase students' appreciation for the scope of the problem of low health literacy, and the clinical and financial outcomes associated with low health literacy
- Increase students' appreciation for the gap between many patients' literacy levels and the literacy demands of many healthcare environments
- Examine attributes of patient-friendly healthcare settings, such as the use of plain language, alternatives to written material, and teach-back as a strategy to assess comprehension

The classroom experience also included several application activities, such as student participation in a simulation of low literacy, and student discussion of actual case scenarios. In addition, a short video “The High Cost of Low Health Literacy” (American College of Physicians) was shown.

Each of the seven student pairs was then assigned appointments in three different departments in the healthcare facility. They were instructed to enter the facility as a new patient would and to physically locate their appointment destinations. Students were instructed to document in journals their experiences to identify both facilitators and challenges to reaching their destinations.

Next, student pairs were assigned to interview a healthcare administrator to learn about their real world experiences with and perceptions of health literacy issues among the patients they serve. The administrators were selected by faculty and agreed to meet with the students to discuss this issue. The administrators were chosen based on availability and our desire to have a variety of settings represented; thus, some bias in the student experiences may be present. Working as a group, the students developed a common interview guide in order to achieve uniformity in the information gathered.

Administrators provided the students with their department’s patient materials such as consent forms, intake forms, insurance forms, pre-procedure directions, post-procedure directions, and health education materials.
The grade level of the written materials was then determined using the Fry Method for Readability (Doak, Doak, & Root, 1998), which was selected for its ease of use and widespread acceptance. In addition, students assessed the written forms and materials for message/content, text appearance, visual appeal, layout and design, and availability in languages other than English.

At the conclusion of each part of the project, students wrote reflections on their experiences in journals they maintained throughout the project. These reflections were then shared at group sessions. Students identified themes from their reflections and discussions. These findings formed the basis of their presentation to the entire class at the end of the semester. The following will provide details on each of these components of the assignment.

NAVIGATING THE HEALTH CARE SETTING

Although all student pairs ultimately succeeded in locating their three assigned appointments, all pairs reported significant difficulty finding at least one of their destinations. Students identified four factors that made their task more difficult. The first factor was the use, when providing directions to patients, of healthcare jargon and technical medical terminology. As the students noted: “How can a patient who is searching for an appointment location be expected to comprehend and differentiate among such terms as “Radiology,” “Diagnostic Radiology” and “Interventional Radiology?” What patient, operating without the benefit of education in the healthcare field, who has an appointment for a kidney problem, could reasonably be expected to know that she is in search of “Nephrology?”

The second factor that posed problems for the students was the often complex and confusing physical layouts of the various buildings within each healthcare facility. They noted that finding a specific location often involved finding their way across several buildings, each with its own floor numbering and color coding systems. These difficulties were exacerbated by the fact that the various structures connect to each other in random and confusing ways. For example, the first floor in one building connected with the ground floor of the adjacent building.

Signage was the third factor contributing to the students’ difficulties. Small print size, poor sign location (obscure and inconsistent placement, heights inappropriate for wheelchair users), numerous signs clustered together at many locations, and the exclusive use of written English and the absence of Braille were among the inhibiting factors identified by the students. In addition, symbols such as arrows displayed on signs were often unclear and confusing, thus compounding the problem.
The fourth factor that made the students’ searches more difficult was the lack of easy access to several departments they were assigned to visit. For example, some departments were located behind blank, electronically operated doors without handles that require the use of unmarked wall buttons to operate. Students reported feeling “silly” and “stupid” when they could not figure out how to open a door. “Even as a college student with excellent literacy skills, trying to find my way to this medical appointment was frustrating,” reported one student.

WHAT STUDENTS LEARNED FROM HEALTH CARE ADMINISTRATORS

Students found their interviews of healthcare administrators to be especially useful and revealing. They were surprised to discover that some of the administrators were either unaware of the term “health literacy” or unknowledgeable about it. This unfamiliarity with health literacy and its implications prevailed even among administrators who were themselves clinicians.

The students reported that administrators who had some familiarity with the term health literacy defined it very narrowly as only related to reading ability or facility with the English language. With few exceptions, the administrators interviewed did not think that health literacy was a significant problem for their patients.

WRITTEN MATERIAL ANALYSIS

As noted, the Fry Method (Doak et al., 1998) was used to determine the reading grade level of the written materials used by each department in the different facilities. The informed consent forms were found to be at the 16th-18th grade level, and the majority of the health education materials, discharge and/or procedure instructions, and intake and insurance forms were written at the 12th –14th grade level. The students found the written materials to be replete with jargon, accompanied by generally unhelpful pictures, not tailored to the audience for which they were intended, and lacking cultural sensitivity.

STUDENT REFLECTIONS

The students approached the assignment with a high degree of skepticism that they would learn anything from the experiential learning assignment. Most equated health literacy with general, functional literacy, and did not believe that low health literacy was a significant problem that would affect clinical outcomes. The view prevailing among the students was expressed best by one participant who said: “I began this project with a strong skepticism,
doubting a health literacy problem even existed. This literacy problem is not
unique to healthcare and therefore was not our responsibility to address.
Health literacy was nothing more than a literacy issue.” Moreover, those
few students who did acknowledge the conceptual legitimacy of health
literacy assumed that levels of health literacy were based solely on factors
such as a patient’s age, socioeconomic status, and educational level.

Interestingly, these student attitudes mirrored the attitudes exhibited
by the healthcare administrators interviewed for the assignment, most of
whom did not see low health literacy as a significant problem for patients,
healthcare organizations, and society. Prior to the assignment, health literacy
was introduced to the students through readings, lecture, class discussion
and viewing of video case examples demonstrating issues of health literacy.
This in-class work did not, however, do much to overcome the students’
skepticism about health literacy. “After our in-class discussion on health
literacy, I didn’t believe that something as simple as being confused about
medical forms was a major cause of our fractured healthcare system. I felt as
if this glitch was only miniscule on the scale of problems affecting the way
we deliver and receive healthcare,” said one student, whose view captured
the sentiments of the group. Or, as one student said, “These patients who
were unable to follow directions for taking their medication were going to
have the same hurdles when trying to bake a cake.”

It was not until the students completed the assignment and experienced
for themselves the challenges faced by patients in the real world that their
skepticism gave way to awareness of and appreciation for the importance
of health literacy. “I associated health literacy with literacy alone, an as-
sumption I soon realized was not the entire picture,” one student noted
at the conclusion of the exercise. By placing the students into the shoes of
patients navigating the healthcare delivery setting, the assignment also
served to disabuse the participants of their previously held notion that health
literacy is simply a function of age or socioeconomic status. As one student
commented, “I realized that it was not merely the poor or elderly that are
impacted by health literacy.” If healthy university students experienced
such difficulty, imagine the level of difficulty experienced by individuals
with limited literacy compounded by anxiety related to their illness.

At the conclusion of each step in the project, all participants joined
together to share their written reflections and to discuss lessons learned.
The sharing of these reflections and the conversations that ensued helped
students to appreciate that the challenges posed by low health literacy are
indeed significant for patients. The fact that all student pairs had similar
realizations and attitude changes validated the students’ conclusions and
reinforced the importance of health literacy for healthcare professionals. “We want to be part of a healthcare team that assures everyone is able to access and use healthcare,” one student stated.

**Conclusions**

All student participants reported that this project provided a meaningful way for them to experience first hand the difficulties encountered by patients for whom low health literacy is a problem. Their responses were not unique; in fact, much of what they experienced has been reported anecdotally in the literature. We know, for example, that our healthcare systems are not “user friendly”; administrators and clinicians make erroneous assumptions about patients’ levels of knowledge and their abilities to find their ways through the maze of structures and processes that comprise our “system.”

Experiential learning is the key to teaching students about health literacy. “Learning by doing” offers a successful approach to raising students’ awareness and understanding of the concept of health literacy, of its complexity, and their appreciation for the significant and wide-ranging implications for patient outcomes that it holds.

Adding an ‘experiential’ dimension to their conceptual understanding of health literacy proved to be a valuable strategy. After just listening to the lecture on health literacy, many students remained unconvinced of the scope and significance of the problem. When students attempted to navigate the system themselves, they reported a greater appreciation for the system barriers that intensify the struggles for the low health literacy population. This, coupled with their relative inability to comprehend written materials routinely given to patients, heightened the students’ insights into the changes that must be made to our delivery systems if they are to provide truly patient centered care. In addition, this pedagogical approach increases the students’ empathy for patients and the challenges they face.

Finally, the students were surprised and, frankly, alarmed by the casual attitudes exhibited by the administrators they interviewed. The students were concerned that if administrators do not recognize how system factors exacerbated the problems experienced by patients with low health literacy, then the motivation to make changes in the system would be limited. Clearly, the first step must be education about health literacy designed to yield enhanced awareness so that all healthcare system professionals can assist patients and ensure understanding and usability of health information.
REFERENCES


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Appendix 1.

Project Objectives

Students participating in the Health Literacy Project will:

- Define health literacy and discuss the scope of the problem
- Discuss consequences of low health literacy
- Assess signs in a healthcare facility for clarity and ease of patient use
- Assess written materials given to patients for clarity of message, text, visuals, layout and design
- Assess readability of written materials
- Discuss health literacy demands on patients in the healthcare system
- Discuss healthcare system administrators’ perspectives on health literacy
- Describe strategies to improve health outcomes for patients with low health literacy
- Describe strategies healthcare administrators can use to assist patient with low health literacy
Appendix 2

Analyzing Health Care Facility Signage

- How long did it take you to find the location of your appointment?
- Describe any difficulties you had in finding your appointment destination.
- Are signs easily visible? Are they also visible to people using wheelchairs?
- Are signs in large or small print?
- Are signs in color? If yes, which one(s)?
- Do signs use a color coding system?
- Do signs use raised lettering?
- Do signs use Braille?
- Are signs in multiple languages?
- Are wheelchair accessible access routes clearly marked?
- Do signs use technical medical terms (e.g., “nephrology”) or common terms (e.g., “kidney”)?
- Are transportation points/facilities (e.g., bus stops, parking lots) clearly identified?
Appendix 3.

Guidelines for Interviewing Administrators

- How familiar are you with the term health literacy?
- What are the chief concerns, difficulties or frustrations of your patients?
- What health literacy issues do you face with patients?
- Is front desk staff trained to recognize and assist patients or families that have difficulty completing forms?
- How do patients receive pre-procedure instructions: By mail? By phone? From a referring provider?
- Do you hear that patients have difficulty locating your unit/clinic?
- Does your physical location in the healthcare facility create problems for your patients?
- Are patient information materials provided in the waiting area?
- Do healthcare providers give patients written instructions or information materials?
- Are patients provided a contact phone number if they do not understand materials or experience difficulty after their visit?
- When a patient has a missed appointment – what is done as follow-up?
- What resources are available for patients who speak different languages or are hearing or visually impaired?
- What procedures do your employ to modify written materials?
- What information is available to patients on the internet?
- How is on-line information updated?
Appendix 4.

**Written Materials for Student Analysis**

- Registration form
- Patient intake form
- Insurance information form
- Informed consent form
- Pre-procedure instructions
- Directions to the clinic
- Appointment reminder card
- Post-procedure instructions
- Patient education materials
- Medication instruction
Appendix 5.

Written Material Analysis

Message
- How many key messages?
- Action oriented/specific?
- Essential information?
- Positive/constructive message?
- Conversational style?
- Avoids technical terms/jargon?
- Accurate, easy to read information?
- Avoids abbreviations and acronyms?

Text
- Large, clear font style?
- Avoids fancy script lettering?
- Use of upper and lower case letters?
- Contrasting colors used for letters and background?

Visuals
- Do visuals explain text? Are they instructive?
- Culturally relevant?
- Clear and accurate photos/illustrations?

Layout and design
- Inviting and attractive?
- Main messages repeated?
- Use of heading/subheadings?
- Use of bullets or lists?
- Key information clearly displayed?
- Key messages conveyed at a glance?

Note: Adapted from Pfizer Clear Health Communication Initiative, 2003