Abstract: While health literacy addresses learners in the health care settings, its principles can be applied to any educational setting. This paper describes a collaborative curriculum design initiative involving four institutions that incorporated health literacy into the curriculum design process. Based on the collaborative experience, this paper examines the relationship between curriculum design, adult learning and teaching principles, and health literacy.

Introduction

Health literacy is the ability to read, understand, and act on basic health information; it is a public health concern that can be affected by age, race, and income levels. Dealing with consequences of low health literacy can greatly enhance quality of life and the safety of individuals and increase patient satisfaction. Studies suggest that individuals with low literacy often make medication and treatment mistakes, are often unable to conform with treatments, don’t have the skills to negotiate the health care system, and can be at risk for hospitalization (Weiss, 2003). Health literacy is often overlooked in curriculum design. This paper describes a collaborative curriculum design initiative involving four institutions; explains how health literacy was incorporated into the curriculum design process; and examines the relationship among curriculum design, adult learning and teaching principles, and health literacy.

The Importance of Health Literacy

Health literacy is defined as a person’s “capacity to obtain, process and understand basic health information and services needed to make appropriate health decisions” (Ratzen, 2001, 210). Health literacy has been identified as a crucial goal to improve health outcomes by the Institute of Medicine, U.S. Department of Health and Human Services, the Joint Commission, the American Medical Association, and the American Academy of Pediatrics (Sanders et al., 2009).

Close to half of all adults in the United States have limited functional literacy skills, representing a group of citizens that have difficulty reading complex texts and using documents that require specialized knowledge (Osborne, 2005). In fact, the 2003 National Assessment of Adult Literacy, published by the U.S. Department of Education, indicates that more than 70 million American adults cannot do basic health activities such as following an immunization schedule, interpreting a growth chart, or reading written medication instructions (Kutner, et. al, 2006).

Health care providers for children often overestimate the health literacy of parents and caregivers. Child health outcomes may be sensitive to caregiver literacy skills. Caregivers are often overwhelmed with complex recommendations for the care of children. In particular, children with special health care needs have complex medical conditions and treatment plans. Caregivers’ ability to understand may impact the health outcomes of their child (Sanders et al., 2009).
Despite information about the importance of readability in health materials, most written information remains at or above an 8th grade reading level. Literacy is important in healthcare; life threatening errors can happen when individuals cannot read or comprehend written healthcare information (Osborne, 2005). To avoid these errors, developing instructional materials with health literacy in mind can serve as tools for fostering caregiver independence and autonomy, providing easy access to information, and creating a systematic curriculum for healthcare providers. In this case, health literacy goes beyond the ability to read and write; it is the ability to communicate and understand information. It is a joint responsibility of caregivers and healthcare providers involved in shared decision-making. As part of the grant R40 MC 08960 from the Maternal and Child Health Bureau (Title V, Social Security Act), Health Resources and Services Administration, Department of Health and Human Services, this paper describes next the nature of collaborative curriculum design initiative.

**Collaborative Curriculum Design Initiative**

The curriculum design initiative is one of the aims of a federally funded grant with the purpose of developing, implementing, and evaluating a systematic, competency-based care coordination education curriculum for caregivers of medically complex and fragile children. The grant project is a partnership of four institutions involving physicians, pediatric nurse case managers, social workers, a research coordinator, a graphic designer, and an adult educator who was recruited for her knowledge of curriculum design. The curriculum goal is to educate family caregivers about how to access and provide seamless inpatient and outpatient care for their children. These caregivers have children with complex health conditions that are often not well understood even by medical providers. By building caregiver coordination skills, the curriculum will stimulate more informed and responsible choices.

Using a systematic approach to support caregivers (adult learners) of children with special needs is essential to providing quality and safe treatment. The curriculum is designed to be taught to family caregivers by their nurse case managers or other providers. In the future, the curriculum sections will be disseminated to other independent learners so they must be able to stand on their own without a trained instructor.

**Curriculum Design Process.** The curriculum design was based on Cennamo and Kalk’s (2005) collaborative model. This collaborative model follows a spiral approach, which proceeds through a series of steps that move to progressively more complete versions of the product being designed. Each phase incorporates essential elements of systematically designed instruction: learners’ needs and characteristics, desired learning outcomes, assessments, instructional activities, and evaluation. The team of designers cycled through the phases of Define, Design, Demonstrate, and Develop, and revisited each of the essential elements of curriculum design. The model includes a fifth phase, Delivery, which includes the utilization of the curriculum with learners. The Delivery phase will take place in 2010. The curriculum design we used involved a collaborative problem solving process.

The curriculum design was evaluated using formative and summative evaluation approaches. Formative evaluations were conducted during the process of designing and developing the materials. Summative evaluation measured the effectiveness of the materials after they have been finalized. Formative evaluation ran throughout each phase in the curriculum design process. Designers built feedback loops into every deliverable, actively seeking comments, criticisms, and suggestions from subject matter experts, family advisory group,
colleagues, and potential learners. A family advisory group, comprised of caregivers of children with special health care needs, was consulted to discuss curriculum content, relevance, and readability. These review and revision cycles assisted in revising and refining the curriculum materials incrementally to be sure health literacy principles were part of the content design. The curriculum will be delivered using a learner guide and an instructor guide containing content material and activities.

**Curriculum Design Materials.** Curriculum materials have been designed with health literacy principles in mind. The overall content is divided into twelve manageable sections, each with a single focus and clear objectives. Within each section, information is presented with clear succinct headings. The use of bullets, text boxes, and ample white space allows for improved readability. Graphics are used to illustrate written content. Each section utilizes the same format: Objectives, Patient Story, What’s It All About, Take Action, Check Yourself, Resources, and Forms. Educational objectives are limited to three or four key behavior outcomes. Each section begins with a patient story to introduce that topic and create a personal connection between the learner and the material. The information in each section focuses on behavioral actions rather than simply medical facts. The curriculum uses short sentences, active voice, plain language, pictures, examples, and a list of resources that present information in different formats including video and audio. Although Internet resources are provided in the curriculum, we recognize that such resources often require a higher level of health literacy.

**How Health Literacy is Incorporated into the Curriculum Design Process**

Health literacy is incorporated into the design process using adult teaching and learning strategies. A total of 12 sections are included in the learner guide. Each section contains consistent headings that direct the learner to a short story related to the section topic, what the section is all about, things to take action when talking with the healthcare provider, information and resources, a check yourself page as a summary of section topics, and section-related forms. Each section is carefully designed containing one or more of the following strategies: using Ask Me 3™, creating a learner-friendly environment, considering the literacy level, including easy-to-read materials, considering activities that promote interactive communication between learner (caregiver) and instructor (case manager), using alternative forms of communication through forms, graphics, and using universal design in print and on the web (font, type size, line length, pictures, etc.) (Mayer & Villaire, 2007; Osborne, 2005; Partnership for Clear Health Communication, 2010).

In the instructor guide, the same materials contained in the learner guide are included. However, it is organized in an instructional format with learning objectives, assessment strategies, and outcomes. Also, a detailed description of the activities to be accomplished with the learner is integrated into the instructor guide for easy access.

**Ask-Me-3™.** The curriculum follows a learner-centered approach; it places the caregiver at the center of the curriculum design. The learner is recognized and respected and plays an important role in decision making (Brewer, McPherson, Magrab, & Hutchins, 1989). This means that the learning process comprises an open attitude toward learner questions and encourages involvement. Ask-Me-3™ is a tool used to enhance communication through three simple questions: What is my main problem? What do I need to do? and Why is it important for me to do this? This model was a key framework used to design the curriculum. The three questions are used throughout the curriculum in the template for each section. What’s It All About addresses
the question, What is my main problem? *Take Action* addresses the question, Why is it important for me to do this? *The Patient Story* highlights, Why is it important for me to do this?

**Learner-Friendly Environment.** The text-based materials are organized using visual cues to focus attention, organize information, and present content in small chunks. Bulleted points to highlight items, bold print headings, text lead-ins introducing bulleted lists, listed items with explanatory text, tables, and text boxes are used to create the learner-friendly environment. Bullet points are in the form of numbers, darkened circles, and check-off boxes. Numbers show sequential steps. Darkened circles mark important points. Check-off boxes imply the learner needs to take action. Before listing bulleted points, text lead-ins introduce readers to the information that follows as short phrases or complete sentences (Osborne, 2005). Bold print headings are used to draw attention to each new topic. Tables and text boxes are used to highlight key information, tips to follow, and provide a brief summary of the content presented.

Consistency is a key feature of the learner-friendly environment, so that the learner can understand the structure of the materials and access each section seamlessly. Consistency is used for grammar, punctuation, and lists. The use of explanatory text is to help learners scan for what they need to know or seek more information. Lists chunk information into three to eight items and allow learners to quickly view the content (Osborne, 2005). The layout of the materials follows a consistent template, so that the learner knows what to expect from each section. All materials are created to be printed in color. Colors were chosen to be easy to view and enhance the visual experience. However, colors are not critical to the learning process, recognizing that learners may be color-blind or see reprints in black and white.

**Literacy Level.** Because the curriculum is designed for learners with varied health literacy skills, the materials are created using plain language aimed at a 6th grade reading level. Plain language is used with the purpose of “presenting information that is clear, to the point, and directed to the target audience” (Health Literacy Innovations, 2008, p. 7). The Ask-Me-3™ tool exemplifies these three points. Our materials are well-structured and logically sequenced. Our goal is to have learners understand the information the first time they read or see it. We are all familiar with how difficult it is to navigate the health system, comprehend complex health-related information, and understand unfamiliar terms. Plain language entails putting complex concepts into understandable terms.

Plain language is utilized in the curriculum’s written materials. The following strategies were used to help learners understand the materials: organizing content by placing behavioral actions first, breaking information into small chunks, using everyday language to explain technical or complex terms, using white space to spread out content and to highlight important information, and using graphics and pictures that the learner can relate to and support the point being addressed (Health Literacy Innovations, 2008).

**Activities that Promote Interactive Communication.** The curriculum is designed with the aim of being used initially by a learner (caregiver) and an instructor (the case manager), but as the learner becomes more independent the materials can be used on an as-needed basis or as resources. When used as a teaching tool, learner and instructor participate in interactive conversations and practical applications (such as completion of forms, creation of calendars, scheduling of appointments, etc.). The important characteristic of the curriculum is the flexibility of the interactivity.

The main focus is the learner’s needs and accessibility to the material at the time needed. From the instructor perspective, it is important to listen to the needs of the learner. From the learner perspective, it is important to become more independent and autonomous. The intent of
the curriculum is to empower caregivers to better provide care for their children. Ultimately the caregivers are responsible for their own learning.

**Alternative Forms of Communication.** Communication can occur during hospitalizations, during medical visits in clinics, via telephone, or in the home. Therefore, the curriculum materials can be accessed through different formats. For each topic section, forms are included and are to be used based on the need and learner choice. In many cases, optimal learning will take place as learners complete the forms with the input of their health care providers. In addition to written materials, all topic sections will be available via the Web. More sophisticated learners will be able to download or complete forms directly from the Web. Each section has a resource list that provides alternate sources of information. These include contacts for government agencies and other community resources. Links to Web-based video and audio files provide opportunities for learners who are interested to access information in other formats.

**Relationship between Curriculum Design, Adult Learning and Teaching Principles, and Health Literacy**

Curriculum design is the process for defining, designing, demonstrating, and developing the different components of the competency-based care coordination education. Adult learning and teaching principles are the ways in which we look at the characteristics of the learner, the role of the instructor, the locus of learning, and the learning process. Health literacy is the transparent bridge that connects learners (caregivers) to knowledge in a more concrete, relevant, and efficient way. These three concepts come together in our collaborative project because the curriculum focuses on the adult learner, the collaborative team is diverse in expertise, and we use a systematic framework for designing instruction.

We use adult learning and teaching principles by focusing the curriculum on the learner, the individual who can decide what is important to learn. The curriculum design is based on this adult learner who has past experience to verify or invalidate information that is presented and want information that is meaningful and useful as needed (Mayer & Villaire, 2007). For that, the learner is recognized and activities with an emphasis on health literacy are incorporated. The ultimate goals of the curriculum are to provide access to information, affect behavior change, and foster learner independence.

Each team member brings relevant experience and expertise that contributes to the richness of the curriculum content and the design process. A diverse group of individuals with backgrounds in education, nursing, content, application, and health literacy can effectively feed on each other’s knowledge. In addition, the team actively sought comments, criticisms, and suggestions from other individuals such as subject matter experts, colleagues, and potential learners. This feedback loop serves to assist in revising and refining the curriculum materials to ensure that the needs of the learners are part of the content design.

The systematic framework for designing instruction also focuses on the learner at the center of the design process. For every phase of the design process, team members assemble information and ask questions, synthesize information and solve problems, and check understanding and confirm work with the learner at the centered (Cennamo & Kalk, 2005). Health literacy is the constant reminder about the learner during the design process. As designers create content and activities, plain language to communicate and apply concepts is incorporated into the materials. It connects learners to knowledge in a concrete, relevant, and efficient way.
Practical Implications and Conclusion

While health literacy specifically addresses learners in the arena of health care information, these principles could be applied to any educational setting. The approach for curriculum design with emphasis on health literacy can be transferred to other contexts such as business, industry, and the military. It is a matter of thinking about the learners first and providing written and verbal information at the learner’s level. Consider how the curriculum relates to their needs, and apply educational principles that are flexible in nature. As curriculum designers we must understand the characteristics of our learners and incorporate them into teaching and learning. Health literacy goes beyond general literacy skills of reading and writing. The framework of health literacy should guide the presentation of complex information in ways that can be understood by learners of all ability levels. In the development of this curriculum, health literacy concepts were incorporated in all phases of planning, design, and implementation. When curriculum designers understand and utilize principles of health literacy as a foundation for all teaching aimed at adults will optimize achievement of learning objectives. Curriculums and materials that use health literacy will benefit more people in a broader range of settings.

References

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