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Engaging Students Through Collaboration: How Project **FUN** Works

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CAN WE COMBINE CLASSROOM INSTRUCTION, *video lessons, and an online learning environment in a way that captures the attention of middle school students and helps improve their exercise and nutrition habits?*

FACULTY FROM THE COLLEGE OF NURSING POSED THAT QUESTION TO INSTRUCTIONAL DESIGNERS FROM THE SCHOOL OF EDUCATION AND VIDEO AND MEDIA EXPERTS IN THE COLLEGE OF COMMUNICATION. With little hesitation, the response was "of course," and thus began the remarkable partnership that was known as "Project FUN" (Fitness, "U," and Nutrition). • Eventually the partners in Project FUN included graduate and undergraduate students in all three disciplines and a group of middle school children. The collaboration was founded on Hutching and Shulman's 1999 Scholarship of Teaching model (1), in which faculty from diverse disciplines combine talents and expertise to solve a problem. In this case, the problem was the development of Internet and video interventions to help low-income, culturally diverse middle school students improve their diet and physical activity behaviors.

ABSTRACT Students from three disciplines designed, developed, and implemented exercise and nutrition interventions, online modules and videos, to benefit low-income middle school students. The process used to incorporate the scholarship of teaching into a collaborative college-level application of learning is described.

The Collaboration Model Faculty members participating in Project FUN represented three disciplines. The two team members from nursing, Frenn and Malin, had previously conducted research (2,3) that served as a foundation for working with students in urban settings. Their research with Bansal (4) had shown that face-to-face, nurse-delivered classroom instruction led to improved exercise and nutritional behaviors among middle school children. The current shortage of nurses and the looming obesity epidemic among children accentuated the need for widely accessible interventions for low-income children who are most at risk for obesity.

It became apparent during the early stages of the project that the scholarship of teaching model should be expanded to involve graduate and undergraduate students. Undergraduates enrolled in an independent project course for the Department of Communication would develop instructional videos for Project FUN, planning, proposing, scripting, shooting, and editing video materials. Two School of Education faculty members would work closely with the nurse faculty, who would serve as subject matter experts, and graduate students in education, enrolled in an independent study course, would work on the web design, implementation, and evaluation. Graduate students in Advanced Practice Nursing: Care of Children would pilot test Project FUN in classroom settings, and undergraduate nursing students enrolled in community health nursing would pilot test the online versions and provide email and discussion board feedback to middle school students. With the collaborative members of the team identified, the process of developing instructional materials began.

Instructional Designers Weave the Web Instructional design is the "systematic and reflective process of translating principles of learning and instruction into plans for instructional materials, activities, information, resources, and evaluation" (5, p. 2). The first step in the design process was to identify the underlying pedagogical principles that would eventually frame the online learning modules in Project FUN. Phrases used by the project team — *engaging learning environment, authentically situated, meaningful contexts, highly interactive, student centered, construction of knowledge, visually appealing, technologically transparent, simple to navigate, friendly and welcoming* — resulted in an approach to designing course components that relied heavily on social constructivist learning theory (6), cooperative learning strategies (7), multiple intelligence research (8), and meeting students' psychological needs (9).

The instructional goals for the modules were identified as learning and success, and collaboration and self-directed learning were the means by which the goals would be met. A performance-based curriculum design model was selected that focused on organizing the online course around clearly defined goals, demonstrable learner outcomes, and authentic assessment. Content created by the nurse faculty and nursing students was given to the instructional designers in the form of text documents, graphics, and web page addresses.

Six outcomes were identified for Project FUN. After taking part in the instructional program, middle school students would be expected to:

1. State that the recommended daily intake of fat is 60 to 80 grams (25 to 35 percent of calories)
2. Compare and contrast the effects of high-fat and low-fat foods on one's overall health
3. Identify benefits to reducing fat in one's diet and ways to overcome barriers
4. Discuss the benefits of aerobic exercise and ways to reduce barriers to exercise
5. Analyze current eating and exercise habits considering recommendations for health
6. Propose a plan to make desired changes in eating and exercise habits.

Bloom and Krathwohl's taxonomy (10) was used to match student outcomes with the expectations nurse faculty had for student learning. For example, when expecting students to go beyond the simple recall level, verbs such as *describe, discuss, compare, illustrate, analyze,* and *propose* are used instead of verbs such as *define, list, label,* or *cite.*

After agreeing on course outcomes, it was time to develop an outline for content. The outline consisted of an overview of the main units, or modules, with detailed lists of the major subpoints within each module. Instructional materials provided by the nurse faculty were used in developing the outline, and nurse faculty and graduate students reviewed the work for accuracy, continuity, and authenticity. Efforts were made to establish a link based upon instructional outcomes — improved exercise and nutrition — between the online modules and the video resources, which would be developed later.

The instructional design team then turned its focus on how to determine if students actually learn the desired material. It was decided to use three performance assessment approaches as measurable demonstrations of student learning: online discussions, journaling activities, and a workbook. Pre- and posttest measures of activity and dietary fat were also used to measure behavioral outcomes; positive changes in both diet and exercise are reported elsewhere (11,12).

Research depicting the INTERACTIVE LEARNING ENVIRONMENT is clear and compelling: interactive learning environments have powerful and positive effects on STUDENT ACHIEVEMENT, SELF-ESTEEM, AND THE DEVELOPMENT of higher level thinking skills. Thus, THE HEART AND SOUL of the web portion of Project FUN resided in an ONLINE DISCUSSION ROOM where children engaged in ASYNCHRONOUS INTERACTIONS with faculty members and nursing students,

Challenging activities and resources were developed to support student learning using techniques that "scaffold" online learners — a term used to define a process whereby learners' prior experiences and understanding are taken into account when introducing new content (6). Specific attention was paid to honoring the various learning styles that middle school students exhibited during classroom observations. To ensure maximum engagement in the course (8), activities were devised that support visual learners (graphs, charts, and images), intrapersonal learners (reflective logs), interpersonal learners (asynchronous discussions), and logical/mathematical learners (workbooks and calorie counters).

Research depicting the interactive learning environment is clear and compelling: interactive learning environments have powerful and positive effects on student achievement, self-esteem, and the development of higher level thinking skills (13,14). Thus, the heart and soul of the web portion of Project FUN resided in an online discussion room where children engaged in asynchronous interactions with faculty members and nursing students. Through these discussions, children achieved personal knowledge that led to testing and then adopting new behaviors.

For the instructional design team, the challenge was to create an online learning environment that was interactive (engaging students individually), collaborative (allowing students to validate choices by conferring with peers), and meaningful in personal ways (providing opportunities to share opinions online). For example, a discussion question was posed that asked students to reflect on how they could ask their parents or guardians to buy healthy foods rather than junk food as snacks. A few students responded that their parents "just buy us what we want." Through the discussion thread, one student encouraged others in the class by stating that she planned to "ask my mom to go buy apples and beans, because I will eat those." Similar discussion threads throughout the course illustrate how the discussion board in the online portion of the class helped shape students' thinking and change attitudes and behaviors toward living a healthy life.

As part of the team approach to designing and implementing Project FUN, School of Education faculty conducted a professional development session for nurse faculty and nursing students on nuances of online teaching and learning. Among the lessons learned was that the skills needed to guide students through successful online learning experiences are as varied as they are for face-to-face instruction. Just as the successful classroom teacher acts as a facilitator, monitor, guide, lecturer, consultant, counselor, moderator, and manager, so does the successful online instructor. Skill in managing and facilitating the web-based classroom is critical to maintaining an interactive, thoughtful, creative, and fun learning environment that students look forward to visiting.

Communication Seniors Create a Video With the online learning modules complete, the team turned to the creation of instructional videos, a series of short video lessons to be used as student resources for Project FUN. Again, faculty from the three disciplines were needed to make the content both meaningful and visually appealing. Through a grant awarded by the Milwaukee Area Health Education Center, College of Communication faculty and undergraduate broadcast students were tapped to design, produce, and evaluate the videos based on goals derived from the research conducted by Frenn, Malin, and Bansal (3,4,15). Children from the middle school served as actors in the videos and as script advisers in accordance with Kolb's recommendation to engage students in meaningful instructional activities (16).

Three broadcast students in the College of Communications developed the scripts and shot and produced the videos. One student had superior production abilities; one had a combination of writing and technical know-how; and the third had crisp writing and photographic skills. These students were asked to sign contracts before starting their research and planning production.

The broadcast team met with the nursing project director and broadcast faculty to review the global goals for the project as well

as specific content goals. They were encouraged to ask for clarification regarding content and presentation issues as they developed video content suitable for the target audience. Once again, nurse faculty served as content experts, while faculty from another discipline — communications and broadcasting — supervised the process for the writing, production, and postproduction of the video segments.

In writing the scripts, the broadcast students needed to apply communication theories based on content requirements and desired instructional outcomes. For example, when the topic was food calorie and fat content, broadcast students needed to determine if graphic displays or dramatic portrayals would best illustrate the specific content. Nurse faculty were available to edit the scripts for accuracy.

During the process of collecting data and developing scripts, the video production team visited middle school classrooms, interacting with students to observe how they reacted when presented with nutrition and exercise information (17). The children were given the rough copy to read and then engaged in role play, allowing the scriptwriters the opportunity to observe the language preferences of the target audiences. As the children read from the scripts, they would change the dialogue or struggle with language construction to express ideas. For example, a student actor, talking about exercise, said, "What's up there...you just want to rest and play video games. How are we going to win the neighborhood basketball championship when you just bring us down?" As a result of these sessions, the broadcast students changed complex statements, like the statement above, to short and direct verbal expressions.

The scripts were illustrated with storyboards, which helped clarify the video production process for the nursing students and faculty. After nurse and communications faculty approved the final scripts, decisions were made regarding casting, locations, graphics, and music and credits.

Producing the segments involved field as well as studio locations and public as well as university facilities. The three original writing and production team members assumed the major responsibilities for script/shot management, direction, video, lighting, and sound. Graduate students in communications were recruited to function as production assistants (grips). Auditions were scheduled, and six middle school students were selected as actors for the video segments. This required obtaining parental consent and making arrangements to transport the students safely to and from the shooting sites.

The shooting process, completed in eight sessions, went smoothly because of the attention paid to detail during the planning and writing stages. Some revisions, however, were needed to match visual content with the intended goals of the project. Rather than retaping scenarios, corrections were made during the postproduction process, when the digital video was imported into a digital video-editing system. Another task during postproduction was the preparation of graphics. These were conceptualized by the student and faculty team and were completed by a graphic artist employed by the city public health department. Copyright concerns for music and audio effects were addressed by using the institution's licensed music and effects libraries, and institution facilities were used to keep production expenses affordable.

For the middle school students involved in the project, shooting on campus provided an opportunity to see what it is like to be a college student at the university. The children asked many questions about the technical aspects of the video production and appeared to benefit from contact with the college students.

Collaboration between the communication students and middle school student actors resulted in the production of a series of videos that proved to be useful and effective learning tools for Project FUN. Kolb (16) suggested that learners test knowledge through a four-step process: 1) concrete experience serves as the basis for observation and reflection; 2) these are used in the formation of abstract concepts; 3) generalizations are tested; and 4) active experimentation takes place as new situations arise. The university students used this process in illustrating nutrition and exercise dilemmas for presentation in the videos. Later, a fourth broadcast student was hired to work with a Spanish-language faculty member to dub a Spanish-language track to the original video, allowing the College of Nursing to expand the audience and reach a new demographic.

College of Nursing Seniors Teach Online With the development of the online course and the completion of the supporting video series, the final step was to use Project FUN with low-income, culturally diverse middle school students. Senior nursing students were assigned this responsibility, mindful of Kolb's recommendation to engage students in meaningful learning activities (16). Prior to visiting the middle school classrooms, nursing students participated in a daylong professional development opportunity led by faculty from the School of Education and College of Nursing. These faculty mentored students through the process of teaching in ways to engage middle school students in their classrooms. Project FUN interventions called for the support of the middle school teacher who coordinated and scheduled computer lab times to fit with other activities. Learning for the undergraduate nursing students in community health extended

beyond the walls of a university classroom toward a classroom without walls.

The asynchronous nature of the online environment allowed maximum freedom for nursing students to respond to the middle school children while providing faculty the opportunity to preview comments before they were posted. This created a rare opportunity for nurse faculty to coach their students in the effective application of theory without fear of embarrassing them or disrupting their relationship with clients — a problem that frequently surfaces when the delivery is live in a community or acute care setting. For example, a nursing student responded online to a middle school student that "she was really eating healthy," when, in fact, the child's calorie intake was far too low. The software allowed a nurse faculty member to catch the mistake and help the nursing student provide a more appropriate response in a revised online transmission.

The online format gives nursing students the opportunity to experience teaching and learning in an online environment, a skill they will need in their future practice (18). Project FUN Should Be Fun is being carried forward by subsequent classes, with students continuing to teach middle school children. Subsequent classes have participated in developing additional online modules based on the comments of the middle school students.

A new project involves developing computer-generated, theoretically tailored responses using radio button response options. Selected radio button responses link students to appropriate feedback responses. Where individual feedback is needed for a middle school student, a nursing undergraduate student will provide it. This two-tiered response system provides computer-tailored as well as personal feedback for the child.

Reflective critique, used as an instructional and assessment strategy in all aspects of Project FUN, helped faculty engage in a continuous process of assessment and improve the outcomes for Project FUN. For example, it was feedback from an Hispanic nursing student, that Spanish-speaking middle school students did not truly understand the material, that led to obtaining funds to develop a Spanish-language version. Middle school students also shared their thoughts and ideas in clinical discussions, logs, and anonymous end-of-semester evaluations.

Although liking a course is not a sufficient outcome by which to judge teaching scholarship (19), nursing students in each phase of Project FUN enjoyed what they were doing. They reported that they regarded their instructional work as "fun and interesting" and participation as "important." All university students included their involvement in this project in their resumes. When employers called for references and faculty members were asked, "Can this person take on a project and carry it through?" it was possible to give a wholehearted endorsement to students' ability to collaborate to complete a project in a timely fashion.

Process Evaluation for Middle School Students Ongoing formative evaluation was important to faculty. For example, a workbook was prepared for each learning module. Along with interesting clip art related to healthy eating and exercise, the workbooks contained pages where children could take notes and prepare responses before entering items into the computer. For the first module, for example, children were asked to record everything they ate in one day and then, with the help of a handout, estimate the total grams of fat they consumed. Using the workbooks, the nursing students could monitor the middle school students' decision-making processes.

The workbook was also used to gather feedback about the children's reactions to Project FUN. A response sheet asking children to evaluate modules using a three-item scale was included for each module. Children were also asked to write down what they would change, if anything, about the module, the most important thing they learned, and whether or not they visited the website links included for each module. As the children completed more modules, they generally completed the response sheets and answered questions but did so with fewer comments.

Children's comments were more positive than negative. Typical responses began, "The most important thing I learned from this module was..." The majority repeatedly indicated that they understood the module and learned one or more of the important concepts. Many indicated their level of engagement in Project FUN by offering suggestions regarding possible changes to improve the instruction, module-by-module and in the overall evaluation. Specific recommendations primarily indicated the need to add "more" — more games, more fun activities, more interesting questions. Some children suggested, "Put more fun in it...make it what its name is...fun." Some suggested more color or more cartoon characters to represent food. One child wrote, "Make it more interesting to the teenage mind." These comments led to the realization that although the content seemed appropriate, some strategies used to teach the content were in need of revision as well as graphic redesign.

Four interesting themes emerged from the student feedback. First, boys appeared to find the sessions less engaging than girls. Further investigation is warranted to identify whether interest in appearance and body image may tend to pique girls' interest in health information. A computer game, "Who's Hungry Jeopardy," is now used to reinforce learning and to make

sessions more engaging for male students. Second, middle school students appeared to internalize the learning and frequently began their responses to the question about what was most important with the pronoun "I." For example, comments such as, "I can find healthy foods that taste good" or "I need to do more exercising," were common. Third, the middle school students often indicated that they learned a very specific fact, such as, "Eat only 60-80 grams of fat a day (25-35% of calories)" or "Exercise an hour most days of the week." It is hoped that these facts will stay with them.

Finally, it was clear that these middle school students were still in the stage of concrete learning. Specific answers indicated that the children were learning the material, but sometimes interpreted information literally. For example, one child wrote that she learned "not to eat unhealthy food because you will have a heart problem by having Greece around your heart."

Summary Interdisciplinary scholarly collaboration was essential for the success of Project FUN. The resulting coordination created a learning environment where middle school students successfully integrated lesson goals and concepts into their daily health routines, college students gained invaluable lessons when they took their learning beyond the four walls of the classroom, and faculty were able to add to the literature on the multifaceted and growing scholarship of teaching (1). Although middle school students in a large urban school district were the direct beneficiaries of Project FUN, it is evident that all members of the collaboration benefited. The college students especially came to realize that learning gains value when it is applied to helping resolve a specific public health issue. To this end, the collaboration between the School of Education, College of Nursing, and College of Communication illustrated how students and faculty, working across disciplines, strengthen the interconnected and complex process of teaching and learning.

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