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# Advances in Teaching & Learning Day Abstracts 2004

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**DESCRIPTION AND DEMONSTRATION OF ASPIRE: A COMPUTER-BASED INTERACTIVE SMOKING PREVENTION AND CESSATION PROGRAM FOR ADOLESCENTS,** Carolyn Agurcia, Ross Shegog PHD, Nancy Murray Dr. Ph., Steven Kelder PHD., Alexander Prokhorov MD. PHD., Ronald Peters MD. PHD., Paul Cinciripni PHD., Carl de Moor PHD. University of Texas-Houston School of Public Health, Center for Health Promotion and Prevention Research, Houston, TX, 77030

**INTRODUCTION:** Despite many years of tobacco prevention efforts with adolescents, cigarette smoking continues to be a major public health problem. ASPIRE, a computer based interactive smoking prevention and cessation program, addresses this concern by reaching students through sophisticated technology in which today's adolescents are accustomed. **PROGRAM DESCRIPTION:** This curriculum uses multimedia technology to provide tailored learning experiences to students and is founded on the Transtheoretical Model of change. Tailored lesson content is provided based on initial assessment of the student's smoking status, readiness to change current smoking behavior, level of addiction, and level of depressive symptoms. Each of the 8 tailored lesson tracks takes approximately 30-45 minutes to complete. Development of ASPIRE was guided by a stepped intervention development model, Intervention Mapping. The program makes use of peer video-based role-modeling and animation segments to provide an engaging educational experience. **AIMS:** ASPIRE is designed to teach adolescents about the dangers of tobacco use in an anonymous self-led setting and ultimately prevent the initiation of cigarette smoking and increase cessation in those who do smoke. **METHODS:** ASPIRE is currently being tested in a randomized controlled trial in 16 Houston area high schools, 8 intervention and 8 control schools. All students (n = 1608) completed a baseline survey. The intervention schools completed 5 computer sessions in the Fall of 2002 and 2 booster sessions Fall of 2003. Students were evaluated at 6 and 12 months; students will complete their final evaluation the Spring of 2004. **RESULTS:** Baseline results reveal self-reported smoking status as 907 non- smokers, 500 experimenters, 56 former smokers, and 111 current smokers. **CONCLUSION:** The ASPIRE program appears to have appeal among the adolescent population and could become a stepping stone for building a model of future smoking prevention and cessation programs. A description of the program and hands-on demonstration will be provided.

**USING TECHNOLOGY TO COORDINATE SYSTEMS OF CARE FOR JUVENILE OFFENDERS, Idalia Alaniz,, UT Houston School of Medicine, Medical School-psychiatry, Houston,, TX, 77054**

Objective: To improve the interagency communication and care for juvenile offenders with mental health problems. Methods: A telepsychiatry link connects the University of Texas Harris County Psychiatric Center (HCPC) with facilities of the Harris County Juvenile Probation Department. HCPC contracts with the juvenile probation department to care for certain mentally ill juvenile offenders in a residential setting. Cases are reviewed weekly and treatment progress is assessed along with the legal and disposition status of each case. Results: Communication is facilitated between all locations using the established telemedicine link. The videoconferencing link coordinates the treatment of these youth with probation officers and other juvenile justice system professionals with minimal inconvenience or delay in communication. Also, transit time is reduced between locations and face to face consultations are facilitated. Conclusion: This technology improves communication and allows these juvenile offenders to receive effective coordination of treatment for their mental health conditions that would not be possible without a telemedicine link due to travel and time constraints on both the HCPC treatment team and the juvenile probation personnel. Videoconferencing provides an effective, real time, visual and auditory connection between systems of care.

**AN INNOVATIVE APPROACH TO TEACHING QUALITATIVE RESEARCH,**  
Karen Brykczynski, RN, DNSc , University of Texas Medical Branch, School of  
Nursing, School of Nursing, Galveston, TX, 77555-1029

The purpose of this poster presentation will be to describe the process of teaching narrative inquiry by engaging students in data collection and analysis in an ongoing knowledge development project. This assignment is one of the learning activities in a master's level Qualitative Research methods course. The faculty member has developed a generic proposal for knowledge development in nursing which is shared with students at the first class meeting. The students then sign on the Internal Review Board (IRB) form as co-investigators. This form is submitted with the proposal for approval so that students and/or faculty can present or publish findings about this activity. Clarification: 1) The objective of the presentation is to describe a qualitative research course that engages students in ongoing knowledge development as they perform the course learning activities. 2) The target population is nursing, medical, physical therapy, occupational therapy, counseling or other health care students. 3) The approach is innovative in that: a. The Dreyfus novice to expert model forms the underlying framework for the course b. The course produces data that contributes to knowledge development in the field of study c. The course is set up so that students are co-investigators in an IRB approved project 4) Evaluation results will be presented.

**INSTRUCTIONAL MULTIMEDIA DESIGN FOR PULPOTOMY TREATMENT,**  
Jung-Wei Chen, DDS, MS, MS , Cynthia Phelps, PhD, Craig Johnson, PhD , University  
of Texas Health Science Center of Houston, Dental branch & School of Health  
information Science, Pediatric dentistry, Houston, TX, 77030

Dentistry requires not only memorized, decision-making and problem solving, but also high levels of sensory-motor ability. Many forms of sensory-motor behavior are learned by imitation, especially complex movements such as dance, singing, crafts, dentistry or surgery. Given the multiplicity of skills to be acquired, it is clear that the design of an instructional multimedia program for teaching a dental procedure needs to involve a variety of educational strategies. Pulpotomy is a most challenging subject to teach. Pulpotomy is difficult to understand: The treatment is three dimension and dynamic. Pulpotomy is difficult to demonstrate because it needs to be demonstrated on the real patient: The bench top teeth don't have the pulp and vessels. Pulpotomy students lack clinical experience: The students have little experience treating primary teeth. Multimedia programs have shown a positive effect in the development of higher cognitive skills in science learning. The use of animation representations of abstract scientific concepts has been shown to facilitate related with enhances holistic understanding of the content. Students given video instruction prefer it to traditional instruction, such as seminars, lectures, or slides. The purpose of this project is to design a computer assisted multimedia learning environment for teaching a pediatric dentistry pulp treatment procedure (pulpotomy) to undergraduate dental students and help them understand and practice pulpotomy. A user analysis and environmental analysis were performed to aid the design. Four different kinds of multimedia methods; animation, video, PowerPoint presentation and static text are, tested in this project. Comprehensive understanding and the clinical skills of pulpotomy will be evaluated to compare the effectiveness of the four methods. Designing an effective dental education program requires implementation of empirically well-grounded educational theory and instructional design principles. This project does so while comparing effectiveness of several types of multimedia.

**COGNITIVE EVALUATION OF WEB-BASED DIFFERENTIAL DIAGNOSIS  
COURSE SUPPORT MATERIAL, Jung-Wei Chen, DDS, MS , Catherine Flaitz, DDS,  
MS, David Taylor, EdD , University of Texas Health Science Center of Houston, Dental  
Branch & School of Health information Science, Pediatric Dentistry & Oral Pathology,  
Houston, TX, 77030**

Differential diagnosis in oral pathology is a challenging course because it involves both conceptual learning and decision making. We designed a web-based, interactive program as a supplement to the traditional didactic oral pathology course. Multimedia programs can have a positive effect on the development of higher cognitive skills in science learning for several reasons, including learner control, dynamic visual presentation, and interactive tutoring and testing. Most studies that evaluate web-based instruction modules focus on the users' satisfaction with the course or the outcomes of written examinations, and these results may not indicate their real value. The goal of this project was to evaluate the oral pathology web-based course material and its effect on learning in the cognitive domain, as well as user satisfaction. Sixty 4th year dental students were enrolled in Differential Diagnosis of Soft Tissue Lesions, using web-based support material, during the fall semester, 2003. At the end of the semester, students completed a survey (Likert-type scale) to determine the usefulness of the web-based materials. Records of student access were obtained using the tracking feature of Blackboard, which was the access point for the course web site. The control group was 4th year dental students in the year 2000, who did not have web-based support materials. The cognitive level of each exam question was categorized according to Bloom's taxonomy (6 levels). Test results were compared between the 2 groups with emphasis placed on the students' responses to those questions categorized as higher cognitive domain material. In summary, student satisfaction of the course increased, average examination scores were higher; and changes in cognitive understanding were analyzed and will be presented.

**ASSESSMENT OF COMPETENCIES IN PHYSICIANS-IN-TRAINING THROUGH THE DELIVERY OF A COMMUNITY-BASED HEALTH CURRICULUM USING DISTANCE LEARNING**, John Culberson, M.D. , Andrea Bortot, M.D., Isitri Modak, M.D., Linda Nieman, Ph.D., Kathleen Becan-McBride, Ed.D., University of Texas Medical School Houston, Family Practice and Community Medicine, Houston, TX, 77030

Physicians participating in the University of Texas Medical School at Houston Joint Primary Care Faculty Development Fellowship mentored second year family practice resident physicians-in-training in preparing and delivering monthly interactive televised presentations. Classes of 150 fourth and fifth grade students at Kelly Elementary School in a border community in Hidalgo County, Texas were taught a variety of age-specific preventative health topics. At the conclusion of year one of the two-year pilot program, the fellows, in collaboration with a faculty mentor, developed an assessment instrument to evaluate the physicians-in-training through critique of videotaped presentations. The instrument applied concepts thought to be important in an effective health education presentation that is age-appropriate and culturally sensitive. Piloted by the fellows, the instrument also assessed the physicians' demonstration of Accreditation Council for Graduate Medical Education (ACGME) Core Competencies in Patient Care, Medical Knowledge, Interpersonal and Communication Skills, Professionalism, and System-Based Practice. Fellows reviewed 5 presentations to ascertain the reliability and validity of the instrument. In addition, teacher and administrators rated their perceptions of the program using an original Likert Scale. The program was then refined to better meet the stated curricular goals. This project permitted a group future academic physicians to experience the process of curriculum development based upon an analysis of needs, and to refine educational methods and evaluations in order to measure mastery of identifiable objectives of the ACGME Core Competencies for resident physician education. This experiential process of teaching fellows to teach residents to teach students is a model that meets numerous educational needs and may lead to the development of other examples of scholarly collaboration among faculty, fellows, residents, and community.

**HONORING THE WISE AND PROVEN PRACTICES OF TRADITIONAL  
TEACHING IN COMPUTER-ASSISTED LEARNING, David Diehl, M.Div., M.Ed.,  
UT School of Nursing at Houston, Center for Education & Information Resources,  
Houston, TX, 77030**

Teachers at every level are faced with the challenge of learning to use educational media resources in teaching and learning. Higher education instructors are faced with the rapidly growing use of technology-based teaching, thus, there is the increasing need to learn how to create and facilitate computer-assisted learning opportunities, especially those supported by the use of the Internet and the World Wide Web. As educators move into this new age of high tech use of media and digital educational resources, we cannot ignore the wise practices proven to be effective in traditional teaching. These principles of effective pedagogy must be honored. They must be taken with us as we move more and more from the classroom to online learning. Effective instruction is not the presence of technological bell and whistles. Successful educators will be those who have selected appropriate instructional strategies based upon a good working knowledge of the most influential learning theories and models of teaching. In addition, it is necessary to have the ability to write accurate instructional goals and objectives and to create a solid connection between these goals and objective and desired learning outcomes. It is the purpose of this paper to initiate on behalf of teachers the exploration of their beliefs and values about education, to cause teachers to become familiar with the most influential learning theories/styles and models of teaching, to model how to write effective instructional goals, objectives and learning outcomes, and to demonstrate the connection between each of these elements and how they support effective teaching.



**DESIGN OF AN ONLINE LEARNING ENVIRONMENT ABOUT ELECTRONIC MEDICAL RECORDS**, Sarah Edmonson, MD , Adol Esquivel, MD, Smitha Sagaram, MD, Craig Johnson, PhD, Cynthia Phelps, PhD , University of Texas Health Science Center at Houston, School of Health Information Sciences, Houston, TX, 77025

Electronic medical records (EMR) are an increasingly important topic in medicine. Many physicians, actively planning a high-stakes EMR investment, cannot find in-person education about them. Hence, we have designed online education materials about electronic medical records. Our initial audience includes two groups: family medicine faculty at Baylor College of Medicine, and students at ITESM School of Medicine. Learning effectiveness evaluation in these disparate groups will demonstrate a robust educational capability. Our prototype users have received a scientific education, have clinical experience, are empirically well motivated, and have adequate experience with internet usage. The design is driven by applicable educational theory for such users, including learning development theories developed by Piaget and Perry; lifespan psychology; Knowles' andragogy theory; experiential learning and learning style theory, and Cross's adult education theory. These approaches agree that the content should reflect the learner's experiences and motivations, and learning should be self-directed, interactive, and self-paced. The program is divided into five learning modules, covering descriptions of functions commonly included in EMR systems, differences between computer and paper records, security, uses of EMR in research, and cost, workflow, and quality of care changes seen with EMR implementation. Each module offers didactic material, as well as case histories, online information, bibliography, and self-test questions. In addition, a hyperlinked glossary and links to vendor demonstrations are included. A consistent navigation scheme provides structure but allows control over the order and content of learning. Criterion items, based on detailed learning objectives, are used in a formal pretest and posttest to evaluate how effectively the material has been learned. In conclusion, our online learning environment, a very appropriate forum for self-education about electronic medical records, incorporates a variety of theory-based measures to ensure effective learning for our users.

**CREATING WEB ADVENTURES ON INFECTIOUS DISEASE AND MICROBIOLOGY, Vicky Estrera, Ph.D. , Janice Mayes, M.S., Rebecca Tuuri, B.A., Janette Moreno, Ph.D., Leslie Miller, Ph.D. , Rice University, Center for Technology in Teaching and Learning, Houston, TX,**

Making science come alive was the challenge in designing web-based curriculum materials for middle school students. Medical Mysteries (<http://medmyst.rice.edu>) is an episodic adventure series, designed for the Web, with a substantive educational message. The web site is not intended to replace classroom instruction, but rather to engage students in problem-solving activities not likely to be encountered elsewhere. It also provides scientists with a resource to “introduce” microbiology to adolescent audiences through outreach activities. In the on-line adventure, the player (student) enters a futuristic world in which he or she becomes a "Reconstructor," a member of an elite team charged with preventing the spread of infectious disease. The series consists of three “missions;” each lasting approximately 30-40 minutes. Each mission was designed to address a limited set of learning objectives. The unfolding plot line draws the student into the exploration of microbiology and infectious disease, while promoting problem-solving skills. Middle school students participated in the creation of the characters and the stylized design through focus groups. Classroom teachers oversaw the alignment of the web adventure objectives with the National Science Content Standards. Scientists and clinicians reviewed the web adventure for content and accuracy. The web- based material uses Macromedia Flash as the programming tool. The project’s design process, learning objectives, accompanying materials and student and teacher reviews will be presented.

**SERIAL VIDEOTAPING OF THE RESIDENT/ATTENDING ENCOUNTER: A METHOD TO IMPROVE OUTCOME PERFORMANCES, Ruth Falik, MD , Nancy Searle, EdD , Baylor College of Medicine, Medicine, Houston, TX, 77030**

**Purpose:** This study pilots a method for addressing educational shortcomings in outpatient clinical encounters between resident and attending physicians in the areas of patient care and interpersonal communication skills as identified by the ACGME. The goals of this study are to evaluate the effects of reviewing videotapes of the attending/resident encounter on indicators of performance on subsequent encounters.

**Method:** Three residents individually interacting with one attending physician were videotaped presenting patients in the ambulatory care setting on three separate occasions over a six week period. The physicians then individually viewed the videotapes and commented on the observed interactions in the presence of one of the authors prior to their next clinic encounter. Indicators measured included: 1) the total time of the encounter, 2) the percentage of time devoted to didactic interaction (defined as discussion of path physiology, differential diagnosis, and therapeutics, as opposed to case presentation and clarification of case details), and 3) the number of interruptions by the attending physician to clarify details of the presentation. **Results:** With each successive videotaping session, the total time for didactic encounters and the percentage of time used didactically increased, and the number of interruptions of the resident by the attending physician decreased. **Conclusions:** The observation of one's self in this objective way may prove less threatening than classic methods of peer mentoring. This method appears to improve both the teaching techniques of the attending and the presentation skills (both interpersonal communication and patient) of the resident. The authors plan a larger study to validate these findings.

**PARTNERING WITH COMMUNITY ORGANIZATIONS AND WEBCT TO ENRICH RESIDENCY EDUCATION IN SUBSTANCE ABUSE,** Leah Fanuiel, LMSW , Cecilia Romero, MD, Ronald Williams, MS, Anika Bell-Gray, MD(Resident-Physici), Sue Davis, LCDC, James Krebs, LCDC , University of Texas Medical Branch, Department of Family Medicine, Galveston, TX, 77555-1120

Substance abuse, problematic use of alcohol, tobacco, or illicit drugs, is the nation's number one health problem. (Horgan CM. Substance abuse: the nation's number one health problem. Key indicators for policy update. Princeton, N.J.: The Robert Wood Johnson Foundation, 2001:6.) "Despite the growing body of evidence that such efforts can be efficacious, physicians report and demonstrate that they, as a group, are inadequately trained to meet this challenge." AAFP Reprint No. 277. Increasing educational requirements coupled with the new work hour requirements in residency education creates a greater challenge for scheduling real life educational experiences outside medical clinics. This session will describe how one residency program created an innovative curriculum that differs from the traditional didactic format by integrating a substance abuse curriculum into the required community medicine experience. Key components of the curriculum include 1) interdisciplinary collaboration with substance abuse treatment professionals for planning, implementation and evaluation, 2) residency scheduled time commitment of 2 half days weekly in an 8-week block rotation for curriculum activities and 3) development of Web based instruction with on-line feedback and evaluation. This curriculum was adapted from the Physician Curriculum: Alcohol, Tobacco, and other Drug Problem Prevention workshop developed by the Center for Substance Abuse Prevention. The curriculum places residents in the community interfacing with Licensed Chemical Dependency Counselors and recovering substance abusers to enhance the residents understanding of treatment and knowledge of referral sources. Communication is a continual challenge among residents, faculty and community preceptors. Clinical hours, rotation sites, and faculty and community preceptors' location all increase the difficulty of managing resident/community rotations. Web based technology offers the tools to provide synchronous and asynchronous communication between residents, faculty and community preceptors, track progress of resident experiences and provide avenues for sharing of resident experiences amongst peers regardless of rotation or track.

**REMEDICATION STRATEGIES AND STUDENTS’ CLINICAL PERFORMANCE,** Fabrizia Faustinella, M.D.,Ph.D. , Philip Orlander, M.D., Laura Colletti-Mann, M.D., Harinder Juneja, M.D., Linda Perkowski, Ph.D. , The University of Texas Medical School-Houston, Internal Medicine, Houston, TX, 77030

We would like to share with you our experience with remediation strategies for medical students who fail the Clinical Performance Examination (CPeX). CPeX is administered at the end of the IV year required Internal Medicine Clerkship. The exam consists of eight standardized patients encounters, during which the students are required to perform a focused history and physical exam based on the patient’s presenting complaint. A remediation plan consisting of the following steps was developed for students who fail the exam: Step I: Students’ performance review. The faculty member reviews the clinical encounter tape to identify in advance the students’ areas of weakness. Step II: Clinical reasoning exercise . The faculty contacts the student and asks him/her to focus on two out of the eight cases. Specifically, the student is asked to think about what elements of the history and physical exam are relevant in those clinical situations. Step III: Formative feedback session. The faculty meets with the student. The cases are discussed and pertinent parts of the tape are reviewed with focus on the students’ areas of weakness. Step IV: Additional clinical reasoning exercise. The student is asked to read a short clinical case unrelated to the exam, identifying which portions of the history and physical are relevant to the diagnosis under consideration; the faculty guides the student through this clinical diagnostic exercise. Throughout the past academic year (2002-03), 21 students out of 191 (11%) failed the initial CPeX. The students who failed went through the remediation process and retook the exam. The post-remediation exam scores show significant improvement in both history and physical examination skills. The percentage of critical items that the students performed correctly on history went from as low as 56% to as high as 92%; the percentage of items on physical exam went from as low as 31% to as high as 96%. This improvement was consistent across all cases. We conclude that the following factors facilitate learning: 1. clinical reasoning exercises, 2. self observation on tape, and 3. formative feedback.

**THEORY AND DATA-BASED INTERNET TECHNOLOGY FOR COST-EFFECTIVE SMOKING PREVENTION**, Kentya Ford, MS , Ross Shegog, PhD, Alfred McAlister, PhD, Angela Meshack, DrPH, Shaohua Hu, DrPH, Ron Peters, DrPH , University of Texas-Houston School of Public Health, Center for Health Promotion and Prevention Research, Houston, TX, 77030

Problem/Objective: Effective school-based prevention programs are based on social-cognitive theory and data from studies of factors related to the onset of tobacco use and designed to use classroom activities to influence specific outcome and self-efficacy expectations. Internet technologies may provide a cost-effective alternative for achieving the same effect. This study evaluated the effects of a theory-driven, data-based website on tobacco use risk factors, intentions and behavior. Methods: The website is visited in a single class session, using on-line self-testing and interactivity with cartoons, streaming video and rhyming “rap” sound tracks. The site assesses intentions and risk-related expectations regarding (1) the use of tobacco for mood control, (2) perceived social benefits of tobacco use and (3) self-efficacy for peer pressure resistance. Then it provides individually-tailored normative feedback, persuasive communication, peer modeling and guided practice or vicarious experience in refusal skills. The final section re-assesses expectations and intentions with reinforcement for improvement. The site was evaluated in 12 Texas middle schools (n=2217 grade 6 students) as part of a 2x2 randomized trial of internet and full- scale school-based prevention programs, using direct web access or CD-ROM in schools without internet connection. Results: Students visiting the site showed statistically significant changes in intentions and expectations. While effects on behavior are not as large as those from a full-scale school-based prevention program (TNT), meaningful reductions in tobacco use may be achieved from a single session on the internet. Conclusion: The internet is a cost-efficient modality for prevention of tobacco use.

**PROBLEM-BASED LEARNING FOR THE MIDDLE SCHOOL STUDENT,**  
Deborah Franklin, DDS, MA , Murray Nancy, DrPH , Dental Branch, Dental Public  
Health & Dental Hygiene, Houston, TX, 77030

HEADS-UP (Health Education and Discovering Science While Unlocking Potential) is an innovative science curriculum for middle school students in the Spring Branch ISD developed by the UT School of Public Health. The program has used computer and video technology to increase students' proficiency in science since its inception. This year the program also incorporated problem-based learning (PBL) into the curriculum. PBL has classically been considered a teaching methodology most suitable for adult learners, but it was felt that addition of PBL to the HEADS-UP curriculum would both maximize utilization of the natural curiosity of middle school-aged students and contextualize the scientific content in a way that would increase its relevance to the students. Use of PBL provides for reinforcement of the scientific method through application and promotes better and longer lasting understanding via active learning. Modifications had to be made to the structure of the PBL case to accommodate the stage of cognitive development of middle school students (predominantly Concrete Operational Thought) versus adult learners (predominantly Formal Operational Thought. Characters, situations and language used were tailored to the middle school age group. Working with middle school teachers, a PBL case dealing with the nervous system and appropriate for use with middle school students was written and incorporated into the HEADS-UP curriculum.

**DEVELOPING A COMPREHENSIVE CHEMOTHERAPY PATIENT  
EDUCATION PROGRAM, Amy Gonzalez, MS. , U. T. M. D. Anderson Cancer  
Center, Patient Education, Houston, TX,**

Providing reliable and consistent multi-media patient education in a multi-centered healthcare institution is a great challenge. This session will discuss how that challenge has been met in providing high-quality chemotherapy education to patients at The University of Texas M. D. Anderson Cancer Center. Each component of the program will be discussed, including innovative print materials, videos, classes, and CD-ROMs. Development and implementation of print materials will be discussed, including the "Guide to Managing Your Chemotherapy Treatment" and individual chemotherapy drug sheets. This guide now has become a standard for chemotherapy education at M. D. Anderson and is the basis for a chemotherapy CD-ROM and video that are now in development to replace the current video and CD-ROM which are available in clinic waiting areas and in The Learning Center. The development of a "Side Effects Standard Phrasing" in collaboration with the Department of Pharmacy to ensure consistency of information in all chemotherapy drug sheets will also be discussed, as well as evaluation of the usage of chemotherapy drug sheets by pharmacy staff and methods that were taken to increase usage. Patient access to cancer information has also been increased by expanded use of Cancer Help®, an interactive computer system. Benefits and challenges of this program will be addressed. Overall, this presentation will illustrate how multiple chemotherapy education resources have been expanded and brought together to form a consistent and cohesive chemotherapy education program.



**DEVELOPMENT OF A COMPREHENSIVE PATIENT EDUCATION GUIDE TO MANAGING CHEMOTHERAPY TREATMENT**, Amy Gonzalez, MS. , Karen Stepan, MPH, CHES , U. T. M. D. Anderson Cancer Center, Patient Education, Houston, TX, 77030

The patient education literature has shown that written information is effective in increasing patient compliance when it is presented in distinct sections and that patients prefer receiving it in a narrative format. The oncology education literature has also shown that it is important to provide patients with self-care information before side effects of treatment become severe. The goal of this project was to help our patients understand and learn how to manage their chemotherapy treatment side effects, in an easy-to-use manner that would not overwhelm them. This session will discuss the process that was involved in assessing, planning, implementing, and evaluating a patient education guide to managing chemotherapy treatment in a comprehensive cancer center. Patients and nurses were surveyed in both the assessment and planning stages of the guide. During the assessment stage, patients and nurses were surveyed to determine the best format for the guide. During the planning stage, a guide developed by an interdisciplinary committee was piloted in 5 centers. Surveys were completed by 66 patients who received the guide and 36 nurses who used it in their teaching. The guide was then implemented institution-wide with free distribution to clinics and it was advertised in multiple communications within the institution. Distribution and evaluation of the guide were evaluated by conducting 30 random patient interviews to determine whether or not they received the guide and whether or not it helped them during their chemotherapy treatment. The guide provides an excellent resource for our patients, a standard for patient teaching, and is now the basis for future chemotherapy program planning.

**WEB ENGAGEMENT: MORAL DISENGAGEMENT AND THE PEACETEST WEB SITE**, Brian Howard, , Laura Benjamins, MD, Alfred McAlister, PhD, Jeannie Grussendorf, PhD, Ross Shegog, BSc, MPH, PhD , University of Texas Health Science Center, Center for Health Promotion and Prevention Research, Houston, TX, 77030

Background: Moral disengagement is the cognitive process by which people make excuses for inflicting suffering on others. By convincing ourselves that violent acts are acceptable, we disengage the moral standards that normally restrain aggression. Research has shown that moral disengagement can be measured and can help predict willingness to support and engage in violence. Pilot studies suggest that peer modeling and education can reduce moral disengagement. Aims: The Peace test project is a theory-based Web-site intervention for high school, college and graduate students as well as the general public in the United States and abroad. Its purpose is to “inoculate” users against moral disengagement by educating them about its processes. Methods: The interactive Web site ([www.peacetest.org](http://www.peacetest.org)) assesses users’ risk of moral disengagement. Those at high risk receive tailored “remediation” through explanations and news media examples of moral disengagement, along with “resistance” modeled by peers. The risk assessment is based on violence-prevention scales that measure attitudes toward the use of military force. (Scales for killing, interpersonal violence, and intimate-partner violence are being developed.) Testing: Gatekeepers from educational institutions and civic groups provided qualitative feedback about the Web site via e-mail and telephone. This beta testing was designed to elicit site improvements and gatekeeper support for dissemination of the intervention. Results: Initial response has been helpful and highly favorable regarding the concept and innovative approach. Responses will be analyzed and reported in early 2004. Conclusion: An interactive Web site with media examples and role models appears to be a feasible platform for disseminating a theory-driven intervention on moral disengagement to classrooms and homes in the United States and abroad. Further research is needed to assess its impact on attitudes and behavior. Funded by National Institute of Child Health and Human Development, NIH grant # 5R21 HD40067-03

**DEVELOPMENT OF A WEB-BASED EXAMINATION FOR A FIRST-YEAR INTRODUCTION TO CLINICAL MEDICINE COURSE, William Huang, MD , Delbert Myers, MD, Ellen Tseng, EdD, Marconi Monteiro, EdD, Fareed Khan, MD, Mary Chou, , John Rogers, MD, MPH , Baylor College of Medicine, Department of Family and Community Medicine, Houston, TX, 77098-3915**

Evaluation of student learning occurs through assessment of their cognitive, affective and psychomotor skills. In this session, we will describe how the addition of a web-based examination has enabled one course to assess more effectively student learning across these three domains as well as give students immediate feedback on their performance. In the Patient, Physician and Society course at Baylor College of Medicine, first-year students learn to take a history and perform a physical examination on patients. Learning occurs through large group lectures, small group discussions, and patient care with a clinical preceptor, and standardized patient exercises. For the past several years, student assessment has occurred through evaluations from their small group leader, clinical preceptor and an end-of-year Objective Structured Clinical Examination with standardized patients. Two years ago, we added a multimedia examination that enabled us to use pictures and videos to test student knowledge on important aspects of the history and physical examination not easily assessed by a traditional paper-based examination. This examination was given in a lecture hall using a PowerPoint presentation and a multimedia projection system. Over the past year, we transformed the multimedia examination into a web-based examination. The additional advantage of a web-based examination is the ability to interact with the student and give feedback. In creating this web-based examination, we included a feedback system that reported the student's score immediately after completing the exam, informed the student of correct and incorrect answers and explained the rationale for the correct answer for each question. In this session, we will describe the implementation of the web-based examination for the Patient, Physician and Society course, show sample questions with their accompanying video images and demonstrate the feedback features. We also will present an item-analysis of the questions and reliability data of the examination's initial offering in December 2003.

**USING HANDHELD COMPUTERS TO TEACH AND ASSESS FAMILY AND COMMUNITY MEDICINE CLERKSHIP STUDENTS, William Huang, MD , Stephen Spann, MD, Fareed Khan, MD, Marconi Monteiro, EdD, Elvira Ruiz, , John Rogers, MD, MPH , Baylor College of Medicine, Department of Family and Community Medicine, Houston, TX, 77098-3915**

Medical students are increasingly using handheld computers as tools for learning and accessing information during patient care. However, students often are learning to use these devices on their own, since there is not much formal instruction on their use in the current curriculum. For the past two years, we have loaned our Family and Community Medicine Clerkship students a Pocket PC handheld computer loaded with Info Retriever™ software designed to promote evidence-based medicine decision-making by primary care physicians. At the beginning of the clerkship, we train students in using this software by presenting a variety of patient care situations and demonstrating how to use the software to access necessary information and assist in making clinical decisions. Students are encouraged to use the handheld computers as much as possible during patient care in the offices of their community-based Clerkship preceptors. We have trained many of our Clerkship preceptors on how to use the handheld computer and its software as a teaching tool in their offices. At the end of the clerkship, students take a multimedia Clinical Case Examination, in which they are presented with typical ambulatory patient cases and asked to answer questions on the diagnosis and management. Some questions are designed to test students' ability to use the handheld computer, which they are allowed to use during the examination. In end of clerkship evaluations, students' rating of the usefulness of the device and software is gradually increasing. Students also perform well on questions on the Clinical Case Examination that test their ability to use the handheld computer. In this session, we will show how we teach students to use the handheld computers. We also will demonstrate questions of our Clinical Case Examination that test students' ability to use the handheld computer and share evaluation data of the device's usefulness to students.

**INNOVATIVE FRAMEWORKS FOR CLASSROOM DISCUSSION, Claudette Ligons, Ed.D. , Lillian Poats, Ed.D., Carol Hightower Parker, Ed.D. , Texas Southern University, Curriculum and Instruction, Houston, TX, 77004**

“Much learning occurs through social interaction.” This is a core learning principle in education reform in the State of Texas. Creating opportunities for classroom discussion is consistent with this basic learning principle.

This interactive session was designed for educators who are interested in updating and rejuvenating small and large-group discussions in their classrooms. Presenter will (a) introduce ways to structure discussions to support mastery of the objectives, (b) involve participants in discussion using at least two “Critical Friends Groups” protocols and (c) engage participants in conversation on potential application of these discussion frameworks in classroom settings.

Critical Friends Group (CFG) protocols can be used to structure classroom conversations. They create ways to move beyond the traditional communication modes. For instance, in the Final Word Protocol the discussion begins with the students’ perspective and background knowledge rather than a prescribed set of questions. The conversation continues with a student reading a passage from an assignment and discussing how the content challenged or extended his/her thinking. This is followed by three or four persons in the group elaborating on their perspective. This provides an opportunity to extend the knowledge base each of the students. The interaction ends when the initiator summarizes the statements and shares how his/her understanding has been enhanced.

A group of participants will model the use of a CFG Protocol which can be used in the classroom. This segment will be followed by a large group discussion of ways to implement activities of this type in the classroom. Participant feedback on this session will utilize a CFG protocol which also has classroom application.

## **USING INTERVENTION MAPPING TO DEVELOP AN HIV/STD AND PREGNANCY PREVENTION PROGRAM FOR MIDDLE SCHOOL YOUTH,**

Christine Markham, PhD , Nicole McKirahan, MPH, Melissa Fleschler, MS, Ross Shegog, PhD, Barbara Low, DrPH, Kiara Spooner, MPH, Dana Hurt, MPH, Liliana Escobar-Chaves, DrPH, Melanie Thiel, BA, Susan Tortolero, PhD , UT-School of Public Health, Center for Health Promotion and Prevention Research, Houston, TX, 77030

**BACKGROUND:** Adolescents are engaging in sexual activity at earlier ages and with more partners. There is an urgent need to develop effective HIV/STD and pregnancy interventions for middle school youth, to help delay or mitigate the consequences of early sexual activity **OBJECTIVES:** To present a practical methodology for developing a multi-component, HIV/STD prevention programs for middle school youth. **METHODS:** Intervention Mapping (IM) was used for intervention development. IM provides a methodology to: (1) identify proximal program objectives; (2) identify theory-based methods and practical strategies for effective intervention; (3) identify critical aspects for program delivery. In addition, we conducted focus groups (nine student; seven parent) and utilized community and teen advisory boards to identify themes and issues critical to program development. **RESULTS:** Data from an urban school district indicate that 25.0% of middle school students reported ever having sex, with the proportion increasing from 18.1% of 6th graders to 27.3% of 8th graders. Of sexually experienced students, 37.1% reported first sex before age 11; 38.0% already had three or more partners. IM was used to incorporate data from student and parent focus groups on dating and sexual behavior together with theoretical and empirical evidence to develop a classroom curriculum and interactive CD-ROM-based tailored intervention. The curriculum addresses peer norms, attitudes, self-efficacy, refusal skills and communication skills related to healthy relationships, setting personal limits, dating, and sexual risk-taking behavior. The CD-ROM-based intervention, delivered in conjunction with the curriculum, tailors information to the individual's intentions or behaviors related to sexual risk-taking. **CONCLUSIONS:** IM provides an effective methodology for developing HIV/STD interventions that are culturally sensitive and relevant to the needs of middle school youth.

**LEARNING ABOUT TEACHING**, Jeanette McNeill, Dr.PH, MSN, RN, AOCN ,  
Marianne Marcus, EdD, RN, Pamela Triolo, PhD, RN, Manuela Imthurn, BSN, RN ,  
University of Texas Houston Health Science Center, School of Nursing, Target  
Populations, Houston, TX, 77030

Nursing education is experiencing a deficit that parallels the critical nursing shortage in hospitals. The graying of the faculty, together with imminent retirement of large numbers, and reduced recruitment of new nursing educators has resulted in record numbers of vacant faculty positions across the US. Nursing education is not limited to academia but also takes place in hospitals, led by staff development specialists. To increase the numbers of nurses with educational expertise, the SON collaborated with The Methodist Hospital to prepare a cohort of aspiring educators and offered a joint course, Curriculum and Instruction in Nursing, in Fall of 2003. Participants in this course had different backgrounds and areas of expertise; many worked full time in highly demanding roles. Most undergraduate programs do not include formal instruction in education, so this was new content. Innovative ways to deliver the content, such as online activities, were considered essential to successful implementation of the course. One approach, an online discussion group, was employed to explore selected course topics. An advantage of this approach was the ability to analyze topics at a “distance”, participating in assigned discussion from home. Challenges included structuring the online assignments and course discussion to accommodate the numbers of students and their individual learning needs. Participating actively in their educational process, students who had experience with Blackboard discussion groups contributed crucial ideas regarding development of the online phase of the course. Anticipated goals of the discussion groups included completion of assignments, sharing perspectives and thought-provoking analysis of nursing education issues. Serendipitous results included “bonding” of the online groups and skills gained in the use of online technology. Future implications for research and education include examination of students’ satisfaction with online assignments and discussions, as well as application of the use of technology to patient and staff education. Further, how can nurses be better prepared for the teaching role at the bedside, and inspired to take on faculty and staff development roles?

**LEARNING AND USABILITY ON EDUCATIONAL COMPUTER GAMES,**  
Yanko Michea, , Cynthia Phelps, PhD, Irmgard Willcockson, PhD, Prabhu Shankar, MD  
, The University of Texas Health Science Center, School of Health Information Sciences  
at Houston, Houston, TX, 77030

Games, especially in a computer platform, offer a unique opportunity to produce interesting, motivating, and interactive learning environments, and to develop new and rich educational environments. This project evaluates an educational computer game designed to support learning about memory. The objective of the evaluation was to evaluate learning outcomes, learner satisfaction, and software compliance with usability standards. Learning was measured using a pre test - post test design; learner satisfaction was assessed using an adapted version of QUIS 7 (Questionnaire of User Satisfaction), and usability was determined using heuristics analysis (Nielsen). A sample of 15 voluntaries was recruited. The results of the evaluation of learning consistently shows significant improvement ( $p=0.003$ ). This significance is consistent in each section of the evaluation. There was no relationship between previous experience or beliefs about games and learning with these learning outcomes. The evaluation of the students' satisfaction shows an average score of 7 point (over a 10 maximum). The most frequent complaint in students was the use of technical jargon. There was no significant correlation between learning and satisfaction. The usability evaluation of the software shows over 50 usability problems, most of them of low severity (1.5 points in a scale of 4 points). The most frequent usability problem was associated with inconsistency with standards. Our results support the educational value of the game, but did not show any clear relationship between learning and user satisfaction. We can attribute this to the characteristics of our sample, and to the overall satisfaction with the software. On the other hand, usability heuristics issues detected were related to the lack of consistency with standards, which is the norm in game interface design. Further research will improve our knowledge and understanding of games as educational strategies.



**ORAL HEALTH KNOWLEDGE AND ATTITUDE TOWARDS PREVENTION OF ORAL DISEASES OF COMMUNITY HEALTH WORKERS, Sena Narendran, DDS , Noe Garza, DDS, Paula Gomez, BS , Dental Branch, UTHSC-Houston, Dental Public Health, Houston, TX, 77381**

Community Health Workers (CHW) or Promotoras have been involved in health promotion activities in developing countries as well as underserved communities in the United States, including the Texas- Mexico border communities. Because promotoras themselves are lay volunteers from the target communities, they are readily accepted as health workers by the audience. Physicians and other health care personnel have trained the CHW or promotoras in different aspects of health care such as pre- and post-natal care, diabetes, cancer, etc. Promotoras working in Brownsville along the Texas-Mexico border have had no training in oral health. We recently initiated a project to provide training on oral health promotion to Community Health Workers (CHW) or Promotoras. Before the training, we collected baseline data on the oral health knowledge, attitude and preventive practices of the participating promotoras. The study population consisted of 27 female promotoras and data were collected by a pre-tested, self-administered Spanish questionnaire. While 33.3% correctly identified the number of permanent teeth in an adult, only 11.1% knew the number of primary teeth in a child. An overwhelming majority (96.3%) was aware of the link between diabetes and oral diseases; only 33.3% was knowledgeable about the role of pit-and-fissure sealants in caries prevention. Also, 96.3% correctly identified the color of healthy gingiva, but none knew about the presence of bacteria in dental plaque. While almost all the promotoras demonstrated a positive attitude toward prevention of oral diseases, a majority of them had a positive perception about their health status. Even though participants had certain deficiencies in their dental knowledge, their positive attitude towards oral disease prevention augurs well for the success of the proj

**Development of a Faculty Research Enrichment Program for Dental Educators,.** Paula N. O'Neill, Ed.D. , John M. Powers, Ph.D., Janice P. Bilan, MBA.

The University of Texas Dental Branch at Houston has a rich history of mentoring faculty in research. In its continuing commitment to faculty development, a formal faculty research enrichment program was offered to 22 faculty from the departments of Restorative Dentistry and Prosthodontics in 2003. The goal of the program was to enhance the research skills of clinical faculty. During the four-month program, 10 workshops were presented covering topics such as Planning Educational Research, Reviewing the Literature, Human Subjects, Introduction to Statistics, and Writing an Abstract and Organizing a Manuscript. The four track program includes: degree track; long-term research mentoring track; short-term research mentoring track; and master teacher track. On the degree track, the faculty trainee (1.0 FTE appointment) is given time to complete an M.S. degree on a part-time basis within three years. On the long-term research mentoring track, the faculty trainee is mentored by a senior faculty member and administrators for five years. The goal is for the faculty trainee to become independent in research in five years. On the short-term research mentoring track, the faculty trainee is mentored by a senior faculty member/administrator for one year with the goal of the faculty trainee becoming part of a research team. On the master teacher track, the faculty trainee is mentored in educational research with the outcome of a M.Ed. or Fellowship. Based on the evaluation, participants strongly agreed or agreed that the workshops were well-organized (100 %), enhanced their knowledge about searching the literature (100%), met their personal goals (100%); and that they would recommend the series to colleagues (100%). Long-term program evaluation includes outcomes assessment of measures such as: number of participants, number of proposals funded, number of papers published in peer-reviewed journals, and number of degrees earned.

## **EFFECT OF EDUCATION AND TRAINING ON COLOR MATCHING**

**RESULTS OF DDS STUDENTS: PILOT STUDY**, Rade Paravina, D.D.S., Ph.D. ,  
Kathy O'Keefe, D.D.S., M.S., John Powers, Ph.D., Paula O'Neill, Ed.D. , UT Dental  
Branch at Houston, Restorative Dentistry and Biomaterials, Houston, TX, 77030

Objective: An elective course focused color education and training on the quality of dental shading for dental students was designed and conducted in the fall of 2002 with the goal of the improving the color matching ability of students. Method: An elective course, "Color and appearance: Theory and practice" (DBEC 6201) was presented to 2nd - 4th year DDS students. The course consisted of 12 one-hour sessions focused on training for color matching through lectures, demonstrations, and laboratories. A 2-hour computer color training using the novel "Enjoy Color" software was performed as well. Color training was evaluated by pre-post color matching of 16 tab pairs from two dental shade guides made the same manufacturer. CPHS approval was gained and students signed an informed consent form to participate in the formal evaluation. Results: Compared to the pretest, a total of 70% improved their posttest score in color matching of shade tabs and 10% had the same result, while 20% achieved poorer score. A mean score for all 20 students in before procedures was 11.1 (s.d. 3.2) out of 16, while corresponding result in the after procedure was 13.2 (s.d. 2.2). Fifteen of them completed the post-course survey using a Liker-type scale ranging from strongly agrees to strongly disagree. Results indicate that the lecture was well-organized (100 %), the instructor made the lecture interesting (100 %), the instructor was well prepared (100 %), and 100% learned something that they did not know prior the lecture. 93% of the students strongly agreed that the instructor made the lecture understandable, and 93 % also strongly agreed they will use the content learned for their dental practice. Conclusions: By self-report students found the course very useful and felt that they became more successful in color matching, which was supported by the objective findings.

**THE MICROBIAL DISCOVERY INSTITUTE WORKSHOP FOR MIDDLE AND HIGH SCHOOL TEACHERS**, Liliana Rodriguez, MPH, RM(AAM) , The University of Texas Health Science Center at Houston, Office of Community and Educational Outreach, Houston, TX, 77030

The Microbial Discovery Institute Workshop aims to enable teachers to incorporate microbiology into the basic science curriculum at local public schools. This week-long event sponsored by The University of Texas Health Science Center at Houston (UTHSCH), the American Society for Microbiology (ASM), and the John P. McGovern Museum of Health and Medical Science, seeks to review basic microbiology content, provide practical inquiry-based activities, stimulate interest in science and the microbial world, present new advances in the field, and provide support and resources for curriculum development. Activities include lectures, hands-on laboratory exercises, field trips, and guided discussions. As a capstone project, the participants develop and present an original curriculum unit based on the activities and concepts presented during the workshop. Participants return to their classroom with a complete syllabus, videos, textbooks and microbiological supplies. A unique feature of this initiative is the pairing of the graduates with a UTHSCH faculty member who serves as a microbiology mentor and resource person. Due to the success of the workshop presented in July 2003, ASM has named UTHSCH a regional site for the Institute.

**CAN TECHNOLOGY BE USED TO ENCOURAGE ADOLESCENTS TOWARD MENTAL HEALTH CAREERS?**, Prabhu Shankar, MD, MS. , Irmgard Willcockson, PhD., Craig Johnson, PhD., Cynthia Phelps, PhD. , University of Texas at Houston., School of Health Information Sciences., Houston, TX, 77030

This project evaluates the effectiveness of using technology to change attitudes and impart knowledge. We designed, developed, and evaluated the effectiveness of an interactive, multimedia online website targeted at high school students. The aim is to encourage high school students to consider careers in mental health. This Web-based learning environment features biographies of mental health scientists. Technology has been successfully used not only to impart knowledge but also to modify behavior and change attitude of people. Lack of knowledge and various misconceptions about careers and scientists has been shown to influence career choice among students. Each scientist biography is presented on several web pages. The topics for the web pages were selected through student input via a career survey. Each web page contains one or more multimedia elements, still images, video and and/or an interactive game. Special consideration was given to quick loading of each web page, while maintaining sufficient quality of the multimedia components. Evaluation was conducted in a systematic, structured way using attitude change, cognitive achievement, usability (ease of use), and affective scales (e.g., fun to use) as outcome measures. The results showed a large effect towards positive change in attitude (Effect size = 1.09) and awareness about mental health scientists and career (Effect size = 1.00). The awareness about mental health fields showed moderate effect (Effect size = 0.55). Further evaluation with many biographies and further research is required to ascertain the value of using the online biographies model in providing help to students in choosing careers.

**IT'S YOUR GAME...KEEP IT REAL: AN INTERACTIVE DESCRIPTION OF A CD-ROM BASED COMPONENT OF A HIV/STI AND PREGNANCY PREVENTION PROGRAM FOR MIDDLE SCHOOL YOUTH, Ross Shegog, PhD , Christine Markham, PhD, Nicole McKirahan, MPH, Melissa Fleschler, MS, Charley Coton, BA, Elizabeth Chapman, , Barbara Low, Dr. PH, Dana Hurt, MPH, Kiara Spooner, MPH, Susan Tortolero, PhD , UT- School of Public Health, Center for Health Promotion and Prevention Research, Houston, TX, 77030**

**BACKGROUND:** Adolescents are engaging in sexual activity at earlier ages and with more partners. There is an urgent need to develop effective HIV/STI and pregnancy interventions for middle school youth. Interactive multimedia programs may offer the potential to motivate middle school youth to delay or mitigate the consequences of early sexual activity. **OBJECTIVES:** To present and describe the CD-ROM based component of a HIV/STD prevention program for middle school youth. **METHODS:** Intervention mapping (IM) was used for early intervention development. IM was used to incorporate data from student and parent focus groups on dating and sexual behavior together with theoretical and empirical evidence to develop a classroom curriculum and interactive CD-ROM-based tailored intervention. The CD-ROM component is visited 11 times throughout the 29 lessons, with each visit lasting 45 minutes. Each student is provided a laptop computer to allow for individual work and to ensure privacy. The CD-ROM component is a 3-D interactive entertainment complex where the students will work on activities that addresses peer norms, attitudes, self-efficacy, role modeling, decision-making skills and refusal skills related to healthy relationships, setting personal limits, dating and sexual risk-taking behavior. Due to a wide range of sexual experience among this population, the CD-ROM activities are tailored to the individual's intentions or behaviors related to sexual risk-taking as well as the individual's gender. Other features of the program include FLASH animation and video clips to provide age-appropriate modeling of skills necessary to delay sexual activity, quizzes to reinforce program messages and assess students' knowledge of topics, and fact sheets to support educational activities. **CONCLUSIONS:** A CD-ROM based component that tailors activities based on gender and sexual risk- taking behaviors is an innovative modality for prevention of HIV, STI's and pregnancy.

**TRACKING INNOVATIONS IN PEDAGOGY AND TECHNOLOGY:  
LEARNING SCIENCE AND TECHNOLOGY REPOSITORY (LESTER), Lisa  
Spiro, Ph.D.** , Rice University, Educational Technology Research & Assessment  
Cooperative (ETRAC), Houston, TX, 77251-1892

Although researchers are developing innovative technologies and methodologies that make possible new approaches to teaching and learning, until recently there was no central place where researchers, funding agencies, instructional technologists, and interested citizens can go to learn about these projects and the researchers and organizations that are carrying them out. Without a widespread knowledge of who is doing what, current research in learning sciences and technology (LST) is uncoordinated, innovations are often isolated and on a small scale, and public awareness of technology's potential to enhance education suffers. To address this problem, Rice University's ETRAC (Educational Technology Research and Assessment Cooperative) has developed LESTER (Learning Science and Technology Repository), which acts as a forum and clearinghouse for ongoing LST activities. Sponsored by Microsoft Research, LESTER (<http://lester.rice.edu/>) features a robust, Web-accessible database inventorying leading projects, researchers, research organizations, and funding agencies. Through this frequently updated database, users can discover valuable information about significant initiatives, such as their research priorities, timelines, funding sources, personnel, and sponsoring organizations. In addition, LESTER is building a virtual community focused on technology and education that features discussion boards, shared documents, and user control of information. LESTER aims to advance the scholarship of teaching by enabling the educational community to track emerging technologies, implement learner-centered tools and methods, and formulate an informed agenda for future research. This presentation will feature a demonstration of LESTER and an overview of its goals and approaches.

**SELF-REGULATED LEARNING AND THE APPLICATION TO CLINICAL TEACHING, Carolyn Utsey, Med., PT , University of Texas Medical Branch, School of Allied Health Sciences/Department of Physical Therapy, Galveston, TX, 77555-1144**

“Give a man a fish and feed him for a day. Teach a man to fish and feed him for a lifetime”. This Chinese proverb is often quoted in relation to teaching a person to become self-sufficient. Today’s health care system mandates that new graduates be as self-sufficient as possible when they enter the work force with skills in problem solving and critical thinking. In order to ensure adequate preparation of students for this demanding and stressful environment, a clinical instructor should establish teaching goals and learning objectives to facilitate student development towards self-regulation and specifically toward self-regulated learning (SRL). Therefore, the purposes of this presentation are to 1) summarize the social cognitive theory of self-regulated learning; 2) discuss the learner’s development of self-regulated learning; and 3) apply this theory to clinical teaching. SRL is defined as behavior(s) of a learner that demonstrate active participation in managing, planning, monitoring, and modifying one’s learning through various strategies. The social environment (i.e. the clinical setting) assists in the development of SRL through different stages. These stages include modeling, emulation, self-control and self-regulation. Each stage moves the student from relying on social influences (modeling and emulation) to self-influence (self-control and self-regulation). Implications for teaching and learning include assisting clinical instructors in designing clinical learning experiences that will facilitate life-long learning through SRL.



**EVALUATION OF EXPANDING YOUR HORIZONS IN SCIENCE AND MATH,  
A CONFERENCE FOR MIDDLE SCHOOL GIRLS, Irmgard Willcockson, Ph.D.**  
The University of Texas Health Science Center at Houston, School of Health Information  
Sciences, Houston, TX, 77030

One time learning events, such as conferences, are frequently conducted for many different audiences. Many conferences are not thoroughly evaluated. Significant amounts of effort and funding are expended without anyone knowing the impact of the event. The goal of this project is to design the evaluation for an annual, one day conference geared toward middle school girls. The Expanding Your Horizons in Science and Math (EYH) conference, organized by the local chapter of the American Association of University Women, is geared toward girls in 6th through 8th grade. Conference organizers recruit especially from middle schools with significant enrollment of underrepresented students. The goals of the conference are to encourage girls to stay in school, continue taking math and science classes and choose a career using math and/or science. The conference exposes girls to professional women who use math and/or science in their careers. These women are invited to conduct two 50 min sessions with 20-25 girls each, presenting information about their career and conducting a hands-on activity related to their career. Conference organizers want to use the evaluations for different purposes. The evaluation of individual presenters will determine which presenters are asked to return, as well as provide feedback about the appropriateness of the careers chosen. Feedback gathered will also be provided to the speakers to allow them to improve their presentations. The conference evaluation will measure the impact of the conference on each participant, and contain knowledge, affective and self-efficacy questions. A follow-up questionnaire will be used to assess longer term impact of the conference. This poster will present the process of designing both the speaker evaluation and conference evaluation tools, with an emphasis on how the age of the participants and constraints of the one time learning event affect the design and administration of the evaluation.

## **INTELLIGENT LEARNING AND TRAINING TOOLS FOR LAB ANIMAL BEHAVIOR ANALYSIS AND MEASUREMENT IN MEDICAL EDUCATION,**

Karl Zhang, PhD , Yiqing Liang, PhD, DeVry University, Keller Graduate School of Management, Houston, TX, 77027

One very important education task in medical schools including neuroscience, molecular and anatomy, pharmacology, psychiatry, psychology, and etc. is to teach students how to analyze and measure lab animal behaviors, since behaviors are the results of brain activities. In this study, we investigate to use a suite of software tools to improve the efficiency and accuracy of the teaching process of lab animal behavior analysis and measurement. We have developed dozens of automated tools that can automatically analyze behaviors of lab animals such as rodents, recognize what kind of behaviors the animal exhibits, and the measurements of each of the behaviors. For example, they can detect a mouse is sleeping, grooming, or rearing up in a home cage; or they can exactly identify a rodent is struggling in a water tank in Forced Swim test. These tools not only can support scientists in their research work, but also can be used as tools for scientists to teach students about how to define and observe lab animal behaviors. These tools record video of animal behaviors during the experiment, analyze the video to understand the behaviors animal exhibits and generate the results, and also annotate the recorded video with the behaviors identified. Such tools can serve several different purposes. First, it can be used to establish gold standards for various behaviors with scientists doing the annotation. Second, students can use it to manual annotate video of animal behaviors, and the system will automatically compare the manual annotation against the results from automated analysis systems. The results of comparison will provide students with indications where they are right and where they might be incorrect. The tool also allows student to make changes in their results so that they can adjust their manual annotation toward the gold standards or the results from automated tools.