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Development of a P.O.I. and a Blended Learning Ecology for use in Combat Lifesaver Skills Training for the Army

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14. ABSTRACT The primary purpose of the project, as originally conceived, was to design and implement a series of applied research studies to validate the effectiveness of a blended learning ecology in the teaching of life saving medical skills to US Army combat military personnel. The project has undergone several changes to include changing the focus to the development of a Program of Instruction (POI) for Combat Lifesaver Skills (CLS). The new scope of work which has been followed for the past year includes the completion of the POI as well as the integration of the Personal Response System (PRS) into the visual presentations used for teaching the CLS course, a process which mandated a complete structural revision of the existing visual presentations. Additionally, the project is seeing the final stages of the creation of two eModules to supplement existing learning materials and the newly created POI.					
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Introduction

The Division of Educational Outreach at the University of Nevada, Las Vegas, (UNLVEO) in collaboration with instructional personnel from Fort Indiantown Gap, proposes to develop a standardized Program of Instruction (POI) to train both active and reserve Army personnel in the use of Combat Lifesaver Skills. In addition to developing the POI, UNLVEO proposes to develop two eLearning modules that will supplement the POI. UNLVEO will develop, field test, validate, implement, and evaluate both deliverables and report its findings.

Body

Project Progress since 3rd Quarter

With the unexpected passing of the project's Principal Investigator (PI) Dr. Richard C. Lee, a new PI with the prerequisite knowledge and experience was needed immediately. In June 2009, Dr. Bea Babbitt, UNLV Director of Academic Assessment, was brought on to serve as the new PI for the TATRC project. During meetings held at UNLV on June 23rd and 24th with Director of Operations (DOO) Jerry Bussell, TATRC Contracting Officers Representative (COR) Gene Wiehagen, and key instructional figures from Fort Indiantown Gap (FIG), the new PI was briefed on the history and status of the project. A more defined project scope was also developed during these meetings. The goals of the project were laid out to be the creation of a "universal" Program of Instruction (POI) using existing instructional material, the restructuring and integration of Personal Response Systems (PRS) into existing visual presentations used to teach the Combat Life Saving (CLS) course, and the creation of two eLearning Modules to supplement the POI and new visual presentations used for class. To accommodate the expanded project objectives, Research Specialist Dr. Angelina Hill and Assistant to Director of Operations Brett Bolton were hired early in the 5th quarter. Dr. Hill would work to obtain the UNLV and Federal IRB exemptions needed to proceed with the research as well as, assist Dr. Babbitt in the development, pilot testing, implementation, and analysis stages of the project. The new assistant to the DOO Brett Bolton would help revise the budget as necessary for the new project scope and coordinate communications between members of the TATRC team as well as, between the team and instructors at FIG.

Introduction

The Division of Educational Outreach at the University of Nevada, Las Vegas, (UNLVEO) in collaboration with instructional personnel from Fort Indiantown Gap, proposes to develop a set of comprehensive training materials using a blended learning ecology to train both active and reserve Army personnel in the use of Combat Lifesaver Skills. The enhanced training program includes the development of a standardized Program of Instruction (POI), revised lecture materials that use interactive learning software, and two eLearning modules. All materials will align with each other, and with the Army curriculum. In addition to development, UNLVEO proposes to field test, and

evaluate the effectiveness of the revised lecture materials and interactive software and report findings.

Project Progress since 3rd Quarter

With the unexpected passing of the project's Principal Investigator (PI) Dr. Richard C. Lee, a new PI with the prerequisite knowledge and experience was needed immediately. In June 2009, Dr. Bea Babbitt, UNLV Director of Academic Assessment, was brought on to serve as the new PI for the TATRC project. During meetings held at UNLV on June 23rd and 24th with Director of Operations (DOO) Jerry Bussell, TATRC Contracting Officers Representative (COR) Gene Wiehagen, and key instructional figures from Fort Indiantown Gap (FIG), the new PI was briefed on the history and status of the project. A more defined project scope was also developed during these meetings. The goals of the project were laid out to be the creation of a "universal" Program of Instruction (POI) using existing instructional material, the restructuring and integration of Personal Response Systems (PRS) into existing visual presentations used to teach the Combat Life Saving (CLS) course, and the creation of two eLearning Modules to supplement the POI and new visual presentations used for class. To accommodate the expanded project objectives, Research Specialist Dr. Angelina Hill and Assistant to Director of Operations Brett Bolton were hired early in the 5th quarter. Dr. Hill would work to obtain the UNLV and Federal IRB exemptions needed to proceed with the research as well as assist Dr. Babbitt in the development, pilot testing, implementation, and analysis stages of the project. The new Assistant to the DOO Brett Bolton would help revise the budget as necessary for the new project scope and coordinate communications between members of the TATRC team as well as between the team and instructors at FIG.

Jerry Bussell and Dr. Babbitt attended the Advanced Technology Applications for Combat Casualty Care (ATACCC) Conference on August 10 – 14, 2009 held in St. Pete Beach, Florida to observe the new advances presented in the medical field and to evaluate the possible use of these technologies in the project. On August 20th, the UNLV TATRC Team convened to establish a tentative timeline for the project's completion. It was also decided that two additional members should be added to the team, one to assist with creating the POI and one to help restructure the PowerPoint presentations supplied by FIG and integrate PRS technology into these presentations. In early October, graduate students Gordon Louie and Amanda Tarquino were brought on to assist with the POI and PowerPoint slides, respectively. The budget was revised to accommodate the new hires and for upcoming hardware and software purchases to be made in preparation for the development phase of the project.

Once the full team was in place, the developmental phase began for the POI and the interactive lecture content. A research study to evaluate the effectiveness of the blended learning ecology was also being developed at this time, and the process to comply with Human Subjects research via regulations of UNLV and the Army was initiated. Initial development of the POI and an interactive lecture presentation was

shared with the UNLV team in early November, and with FIG instruction staff and Gene Wiehagen in mid-December. The research design, including a questionnaire to be given to instructors and trainees was also shared. Major Guy LeVeille, who was in charge of the instruction staff at FIG, brought instruction specialists SFC Gary Dixon and SFC Ron James to evaluate the materials created to date. Due to a recent promotion, he also brought Cpt. Adam Bickford, who would succeed him at FIG around New Years, to meet the UNLV team and get a firsthand look at the project's progress thus far. First drafts of the POI and the interactive lecture content were shared. It was also agreed that the topics for the E-modules would be Assessment and Controlling Bleeding. The FIG instructional staff expressed great satisfaction at this meeting and encouragement toward the direction the project was heading.

At the end of December, Brett Bolton's contract expired, and due to other career opportunities, he left the project after having served for two quarters as Jerry Bussell's assistant. David Nguyen was then hired to succeed Brett, and as the New Years passed, the team returned to the University and prepared for the pilot testing phase.

The UNLV team set a goal of February 2010 to complete a complete first draft of the interactive lecture content and POI. Once completed, the team would train the FIG instructors to use the interactive lecture content in order to implement the newly developed training at the FIG base with actual trainees. Full implementation for the instructors consisted of carrying out instruction using fully revised PowerPoint slides, using of a classroom performance system that allows interactive questions be imbedded into the presentation, and instructing trainees to answer and review interactive questions using a personal response system (clicker). To prepare for implementation, three sets of personal response systems (clickers with personal response system software) were purchased from eInstruction. Two sets were sent to the FIG base, and one was kept by the UNLV team for development.

In early February, the first draft of the interactive lecture content (PowerPoint slides with interactive questions) was completed and approved by the UNLV team. In mid-February, the first draft of the POI was completed and submitted to FIG for review and evaluation. To begin implementation of the interactive lecture content, team members traveled on February 5th to FIG to train the instructional staff to use the personal response system and clickers, and to familiarize them with the new PowerPoint presentation. Unfortunately, in the midst of their travel, they encountered the North American Blizzard of 2010. Unable to get on base for the training to take place, the two were forced to return to Las Vegas.

Dr. Babbitt presented the project at a TATRC product line review in Frederick, MD on February 23, 2010. This review exposed the project to a distinguished panel of military training and medical modeling and simulation experts and provided an opportunity for constructive feedback from these experts. It was also an opportunity to meet the project's new Contracting Officer Representative (COR), Major Thomas Talbot, and to say good-bye and thank you to Gene Wiehagen for shepherding the project from its beginning and assisting with the transition to the new PI after Dr. Lee's passing.

To move forward with implementation, a video conference call was held between the UNLV team and the FIG staff on March 17th to provide the necessary training. Another team was sent to FIG on March 22nd to 25th to oversee an initial implementation of the interactive lecture content. FIG instructors lead a training class using the revised PowerPoint slides. They ran the slides using the personal response system software, and had trainees answer interactive questions included in the slides using clickers. This first implementation uncovered several issues including technical problems that required troubleshooting, and necessary changes to the presentation materials. The UNLV team spent two days with lead instructors to revise the lecture content and add and change questions so that they were more effective. At this point, members of FIG had evaluated the initial draft of the POI. They provided a detailed set of revisions to the UNLV team during this visit.

The POI and the interactive lecture content continued to undergo revisions. Another preliminary implementation of the further revised interactive lecture material was overseen by the UNLV team at FIG on April 12th. Further technical curricular issues were noted and dealt with during this visit. At the same time, SFC James traveled from FIG to UNLV to discuss logistical changes to the POI in further detail. He also met with UNLV team members, including Distance Education Senior Designer, to discuss the development of the eModules.

Throughout the spring, Dr. Babbitt met with the Distance Education Director to discuss the development of the eModules on casualty assessment and controlling bleeding. The content of the POI and interactive instructional materials were shared with Distance Education staff to establish the content to be included. The design parameters were agreed upon and a design team was assigned. The goal of the eModules was determined to be supplementary instruction for those soldiers who might need more in-depth instruction or review during the Combat Lifesaver Training. A target date of July 1, 2010 was set for completion of the modules for team review.

Following detailed feedback, a second revision of the POI was completed in late April. Around this time, the study to assess the effectiveness of the interactive lecture materials was fully approved by the Army's Medical Research and Materiel Command, after having already gained IRB approval at UNLV. Following approval, another UNLV team went to FIG on May 10th to implement and perform a pilot test of the effectiveness of the interactive lecture materials during a training course. Trainees and Trainers were asked to fill out a questionnaire about their experience using the interactive lecture material, which focused specifically on the use of the clickers, and the effectiveness of the PowerPoint content. The questionnaires were considered preliminary and subject to change at this stage in pilot testing, but no issues were found that required changes. Final test grades were also collected from the training class to allow for a comparison with performance in past training classes.

The UNLV team also met with a logistics expert on the May 10th visit to discuss the POI in further detail and to review it for logistical accuracy, as well as its important role in

defining necessary supplies for training purposes. Another implementation visit was taken by UNLV on May 19th to implement a newly revised set of interactive slides and to gather questionnaire feedback from the participants. It was noted that the instructors continue to have technical difficulty using the personal response system and using the interactive questions in an effective manner.

Dr. Babbitt and Jerry Bussell attended the American Telemedicine Conference in San Antonio, TX in mid-May. Here they were able to see the featured TATRC projects, learn about the many approaches to telemedicine being employed, and discuss UNLV project progress with Major Talbot (COR) and Harvey Magee from TATRC.

The third revision of the POI was completed in early June and submitted to instructors at FIG. The Senior Designer for the eModules also traveled to FIG to work with instructors to further develop the eModule design.

Current Project Status

The UNLV team is now awaiting feedback from FIG regarding the third revisions for the POI. The two eModules are in their final stages of development and they will undergo detailed review and revision before submitting for review at FIG. A UNLV team is scheduled for another visit to FIG on July 19, 2010 to provide extensive training to key CLS instructors in an effort to alleviate the difficulties that they continue to have with the personal response system software. They also plan to train the instructors in best practices using clickers, and how to employ interactive questions in the most effective manner. Data collection and analysis has been ongoing and will continue through the next quarter.

Future Objectives

Future objectives for this project include the following items:

- Make any final revisions necessary to the POI once feedback from FIG has been received and prepare POI for final approval from Ft. Sam Houston
- Continue with current research procedures and gather more data for analysis
- Analyze and report research data
- Complete and submit final versions of the eModules to FIG

Key Research Accomplishments

We are still in the data collection part of the study. Results of our research findings will be presented in the future. However, the implementation process has revealed some useful information related to developing effective training for the Army.

Preliminary implementation of the interactive lecture content has informed us of the need for training materials that are adaptable. We found that the training facility must

train classes that vary greatly in size, and in the trainees' experience level. For example, larger classes operate more smoothly by tackling large blocks of in-class lecture, whereas smaller classes work better by dividing the content up with labs. Working with the training facility has made us aware that training content must be flexible enough to accommodate these changes. For instance, lectures must be able to terminate at many different points throughout the larger training course. Also, questions of varying levels should be included to meet the needs of a wide variety of students.

We have also discovered that the training classes are highly variable in terms of the different instructors, classrooms, and equipment being used. This has necessitated much more instructor training and troubleshooting than we expected at the outset. This also reinforces the need for all training materials to be highly adaptable to meet the needs of changing students, instructors, and technology. By making the training more adaptable, this means that the instructors require more training so that they can troubleshoot situations and think on their feet so that the training best suits the needs of the situation. There should also be flexibility in the training content, so that instructors have time to emphasize what they believe is most important.

Finally, we discovered that many of the questions used in the Army Combat Lifesaver Skills training manual were very easy for the trainees. Performance on many questions was at ceiling, even when many of the trainees were taking the training for the first time. Such performance did not lead to the type of engaged learning that we desired. The goal of the interactive questions was to cause soldiers to think critically about the material, and to engage active discussion (Guthrie & Carlin, 2004). A few easy questions at the start are reasonable to get the trainees comfortable with the clickers, but too many easy questions are not effective.

Reportable Outcomes

No reportable outcomes at this time.

Conclusion

The project has undergone many changes in the past year, but the basic three goals of developing a POI, integrated visual presentation, and eModules remains the same. While final conclusions for the success of these materials for use in the Army may still be premature, the initial implementation phases have shown great promise that their use will result in a more beneficial training experience for the soldiers. With the implementation phase quickly coming to an end, final results from our analysis can be expected within the next few months.

References

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