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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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Development of a P.O.I. and a Blended Learning Ecology for use
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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 since undergone several changes to include changing the focus to the development of a Program of Instruction (POI) for Combat Lifesaver Skills (CLS). Additionally, the CLS course content was integrated with Personal Response Systems (PRS) to promote the learning outcomes outlined in the POI, and 2 eLearning Modules were created to further reinforce content. In the last year, the research component of the project was completed, with samples of trainees taken at Fort Indiantown Gap in Pennsylvania, and the team is moving forward with presenting these research results and preparing for a publication.

15. SUBJECT TERMS
Blended learning ecology, combat lifesaver skills, eLearning, instructional design, program of instruction

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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 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 7th Quarter

Following the submission of the Program of Instruction (POI), the team traveled to Fort Indiantown Gap (FIG) in July to do one final training and feedback session with instructors and to also gather one last set of data to add to the research sample. While the instructors were indecisive over preference of the newly restructured course, they agreed upon face-to-face training that trainees found the technology intuitive and a much more engaging way to teach the course. In August, the final logistical corrections on the POI were approved by NCOs at FIG, and it was then submitted.

In early August, the team met with the Distance Education department staff who are working on creating the eModules. This meeting was called to discuss the design of the interactive components of the eModules. Ideas were exchanged between the two groups especially on increasing the educational impact of the eModules. The meeting ended with the Distance Education Team ready to finalize the design structure of the interactive pieces.

After assessing the direction of the eModules, the project team decided to begin creation of a shorter version that would feature the same interactive portions but would be condensed textually. In essence, this "abridged" version of the eModules would be for trainees who have taken the Combat LifeSaver course multiple times and would like a review of the material without the lengthy wording which would be more effective for first time trainees. The interactive portions would then allow both first time trainees and those re-taking it to reinforce content learned in the course.

Unfortunately, after several months of declining health, Jerry Bussell, Executive Director of Operations, passed away on October 18th. Colonel Bussell (Ret.) was passionate about the importance of effective training for soldiers and worked diligently to strengthen the link between UNLV researchers and curriculum developers and the officers and instructors at the Army National Guard unit at Ft. Indiantown Gap. He hoped that the blended learning instructional model tested at Ft. Indiantown Gap would be widely

disseminated upon project completion. Family, friends, and government and military colleagues paid tribute to Jerry at his memorial service at the Nevada Army National Guard Army Aviation Support Facility in Stead, Nevada on October 25, 2010. Additionally, On January 27th, 2011, a memorial service was held at the Tam Alumni Center of the University of Nevada, Las Vegas to honor the life of Col. Bussell. The UNLV community came together to commemorate the contributions he made to academia.

The Team had applied for a one year No-Cost Extension for the grant in hopes of disseminating the research data and results within the realm of academia. With the No-Cost Extension approved in December, the team began searching for prospective venues for abstract submission and research presentation. After drafting and submitting abstracts, the Team decided on two conferences for presentations: the 4th Annual Emerging Technologies for Online Learning (ET4OL) International Symposium, sponsored by Sloan-C and MERLOT, and the ATACCC 2011 Conference.

While preparing for the presentations, the Team finished making final touches on the eModules with the Distance Education Team at UNLV. After debugging the final version and creating the visual design for the product, they were sent in for production, and the discs were received in June. Steve Huff, Ph.D. was contracted out in June for assistance in reintegrating the PowerPoint lectures with the Personal Response System (PRS) due to his prior work with eInstruction, the company which produced the clickers. Additionally, Patricia Harrison was contracted to assist with and troubleshoot any technological problems during the presentations over the summer. The Team is currently preparing to travel to San Jose, CA in mid-July for the ET4OL Conference.

The UNLV Team is in the midst of presenting research findings at conferences during the 12th and 13th quarters. After feedback is gathered, the Team will draft and submit abstracts for publication of research results.

Future objectives for this project include the following items:

- Disseminate eModules

- Conference Presentations

- Publish research results

Reportable Outcomes

-Abstract for Sloan ET4OL Conference (July 11th-13th, San Jose, CA) [See Appendix A]

-Abstract for ATACCC 2011 Conference (August 15th-18th, Fort Lauderdale, FL) [See Appendix B]

Key Research Accomplishments

Average ratings from a viable sample of 112 soldiers to all survey questions regarding satisfaction and engagement were significantly positive. Questions related to engagement received the most positive ratings. Most trainees felt more engaged in the training with clickers, supporting that the clickers had the desired effect of making the class more interactive.

The majority of the trainees provided responses that fell into three major categories that included (1) benefits from various types of interactivity, (2) reinforcement, and (3) ability to participate with anonymity. Anonymity result was informative because it might seem that removing the anonymity to give trainees more individual responsibility for content knowledge could be beneficial, but it might actually hurt the trainees involvement.

Of the trainees who have taken the CLS course before, most indicated a strong preference for a training course with clickers. All rating to questions comparing the clicker vs. non-clicker version were significantly more favorable for the clicker training (compared to neutral). Trainees again gave the most favorable ratings to the engagement-related question for the training with clickers.

As for the instructor survey results, the only question that instructors rated with a significantly strong preference was that they thought the soldiers learned more in the clicker version of the course, with four of the five instructors having some preference for the training with clickers. The ratings suggest that while the instructors might find the old version of the course easier to teach, they do see benefit to the students with the new version, and enough to where they are open to teaching the new clicker version in the future. This suggests a strong need for adequate training prior to implementing a new system, so that instructors are not overwhelmed.

Exam performance displayed a ceiling effect, in which typical performance is clustered around the upper end of the scale. About half the 2008 cohort scored over 90% correct, and fewer than twelve percent of the cohort scored less than 80% correct. The exam was not a sensitive enough tool to detect an improvement due to enhanced training. Also, higher achieving students typically see the most improvements from clickers.

Conclusion

With the POI submitted and the eModules produced, the UNLV Team has worked on creating a version of the PowerPoint lecture material which will be compatible for current and future versions. Research data has indicated that trainees feel more engaged and both trainees and instructors share the sentiment that the training is much more efficient and beneficial with the new system in place.

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Appendix A

<u>Enhancing an Army Training Course with Technology: Impact on Trainees and</u>
<u>Instructors</u>

Presenter(s)
Bea Babbitt (University of Nevada, Las Vegas, US)
Angelina Hill (University of Nevada, Las Vegas, US)
Gordon Louie (University of Nevada, Las Vegas, US)

Session Information
July 12, 2011 - 10:30am
Pedagogy

Major Emphasis of Presentation:
Effective Practice; Research Study

Audience Level:
All

Information Session
Location:
Atherton

Session Duration:
50 Minutes
Concurrent Session:
1

Abstract:

A detailed look at the impact of an enhanced Army training course. Enhanced training included personal response clickers and enhanced presentation clarity. A research study at a National Guard Center will be presented that assessed the impact the course had on performance, and perceptions of trainees and instructors.

Extended Abstract

Attendees will learn about the impact of an enhanced Army training program. We will show them first-hand how we altered an existing Army training curriculum to incorporate a response system into the lecture, while enhancing the clarity of the presentation. Although response clickers are commonly used in educational settings, the collaboration between a University and an Army Training Center is unique, and this work demonstrates the practicality of expanding the use of technology in all types of classrooms.

Keeping with the spirit of this project, we'll have attendees become active participants of our lecture discussion by answering questions with response clickers. We'll ask willing participants to take on the role of instructor to demonstrate instructional techniques key to the success of the technology. We will talk about what was involved to develop engaging interactive questions for an existing curriculum to be used with the clickers. The collaborative process was central to motivating instructors to take the time to work effectively with an unfamiliar system. We'll also

discuss how we trained a set of novice instructors, most with limited computer skills, to use the response system. We'll walk attendees through our challenges along the way, and what we've learned to overcome them. Several related references for effective teaching with technology will be provided.

A complete description of a research study designed to investigate the effectiveness of the enhanced course will be described. We expected that trainees would have greater satisfaction and engagement in the enhanced training class. Instructors were also asked a set of questions to evaluate their perceptions of the enhanced lecture experience. It was expected that they would also be more engaged in the course, and they would perceive their trainees as benefiting from the enhanced experience. A total of 117 soldiers taking a Combat Lifesaver course at Fort Indiantown Gap, a National Guard Training Center, participated in the study. Sixty-two of the soldiers had never taken a Combat Lifesaver course before. The other 52 soldiers had taken at least one prior course.

Trainees were asked a set of questions related to the clickers. All ratings to questions about satisfaction and engagement in the course were significantly positive (compared to neutral). The average ratings of each of these questions showed agreement (between strongly and somewhat). Questions related to engagement received the most positive ratings. Trainees were asked a set of questions related to the clickers. All ratings to questions about satisfaction and engagement in the course were significantly positive, demonstrating that the clickers had the desired effect of making the course more interactive. Trainees also provided a qualitative account of their experience. The most frequent response given to how they benefited is that they were more motivated/engaged, and many noted that they benefited from the immediate feedback.

Soldiers who have taken a prior Combat Lifesaver course were asked a set of questions comparing the clicker and non-clicker versions of training. They indicated a strong preference for a training course with clickers. All rating to questions comparing the clicker vs. non-clicker version were significantly more favorable for the clicker training (compared to neutral). Not as many repeat trainees indicated definitively that they learned as much in the training with clickers, although no students indicated they learned more in the non-clicker training.

Each of the course sections evaluated were team taught by two instructors. Five instructors were involved in total. The instructors, who have all taught the course without using clickers, provided ratings to questions comparing the clicker vs. non-clicker versions of the course. This was a rather small sample of instructors, but the instructors did not give as favorable ratings of preferring the clicker training as the students gave. The only question that instructors rated with a significantly strong preference was that they thought the soldiers learned more in the clicker version of the course, with four of the five instructors having some preference for the training with clickers. This is especially interesting given that none of the instructors thought that the clicker version was easier to teach.

The main benefit the instructors noted was that clickers made the trainees more attentive/alert, and that the trainee feedback was an asset so that they could identify topics needing further discussion. Several instructors also commented that a main benefit to trainees was the discussion that was elicited following a question. When asked what changes they would make if they were to continue using this format, two instructors suggested moving the questions to the end of the lecture. This viewpoint highlighted to us the importance of making sure that instructors are

keenly aware of the benefits of using clickers as an interactive learning tool throughout the lecture. Instructors were given training on the use of clickers to varying degrees, depending on whether they were able to attend a training the was provided, and the extent of training they received from informed instructional leaders. But getting instructors to a point where they understand the benefits of clickers, and can use them as an effective learning tool requires substantial effort and buy-in.

Exam performance of cohort from the year prior was compared to the performance of trainees who took the enhanced courses to see if the enhanced course resulted in higher test scores. There was no significant difference between the exam scores, but this could be due to a ceiling effect. Strategies for measuring performance with more sensitivity will be discussed. Overall, the results of this study show that trainees in the enhanced version of Combat Lifesaver training rated themselves as very engaged, and soldiers who have taken the training in the past would prefer this enhanced version over the old version. Trainees also perceived themselves as learning more.

We'll end the session by discussing the implications of the results. We'll have participants explore how course enhancements of this type could extend to other settings, how instructors can make the most effective use of these enhancements, and other related topics of interest.

Appendix B

ATACCC 2011 Abstract Submission

Authors: Bea Babbitt, Ph.D.
                Angelina Hill, Ph.D.
                Gordon Louie
Title: Integrating New Technologies into CCC Training

Abstract:
Numerous new technologies and sophisticated simulations have been developed for use in combat casualty care training. Their promise is to deliver more active, realistic, and improved learning. However, attempts to integrate these new technologies into current instruction present many challenges to medical training programs. This presentation will describe the collaboration between an Army National Guard Medical Battalion Training Site and the University of Nevada, Las Vegas to design, implement, and evaluate an enhanced CCC training program that integrated new and refined classroom technologies. The focus of this project was the integration of an electronic response system into the learning setting but the lessons learned apply more generally to the effective integration of learning technologies into medical CCC training.
The Department of Defense describes a "best practice" as a superior method or an innovative practice that contributes to improved performance of the process. Higher education researchers speak of "high impact practices" that have been shown to result in greater student learning. New learning technologies are often intended to promote many high impact instructional practices including active learning, frequent and prompt feedback, increased time on task, increased faculty/ trainee and peer interaction, and greater content realism and relevancy.
As we describe how we enhanced the existing Army CCC training curriculum to integrate the new technology, we will address some common challenges to effective technology integration and implementation. We'll address the challenges in curricular planning for technology use, the challenges for instructors learning to use and then teach with the new technology, and the changes in teacher/trainee and peer-to-peer interactions when using the new technology. Finally, we will report on learning impact and instructor and student comparisons of training with and without the implemented technology.