

Texas A&M University-Corpus Christi
The Island University



Adapting to Change...Anticipating the Future

A Stranger In A Strange Land

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Pulse!! The Virtual Clinical Learning Lab



Program Design

- High-fidelity, first person learning platform that dynamically responds to real-world contextual inputs;
- Authoring templates for incorporating specialized learning objects into modules to meet changes in job competency requirements.



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Program Architecture

- Cognitive experiential learning platform;
- Immersive virtual environment mirroring the health care delivery system;
- Extensive modeling and simulation capabilities yielding a suite of customizable, self-contained software.



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Breadcrumbs...

- FIPSE – LAAP Program - \$4M
Robert Wood Johnson Foundation & Greater Coastal Bend Consortium
- Nursing Workforce: Beyond 2000 - \$1.25M
- Telecommunications Infrastructure Fund Board
Model Classroom – Web Infrastructure
Digital Media Preceptorship \$1.8M
- Office of Naval Research \$9.85M



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Call for Proposals - RWJ

- Composition & Capacity
- Geographic Information Systems
 - Map Health Risk
- CDC – Behavioral Risk Factor Surveillance Survey
- Predict Health Care Needs
 - Adapt Curricula



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What is eLine?

- Seamless, articulated, collaborative, delivery system for entry-level nursing curriculum, available anytime, anywhere
- Competency-based, self-paced modules of existing nursing curricula
- Complies with essential standards & accreditation

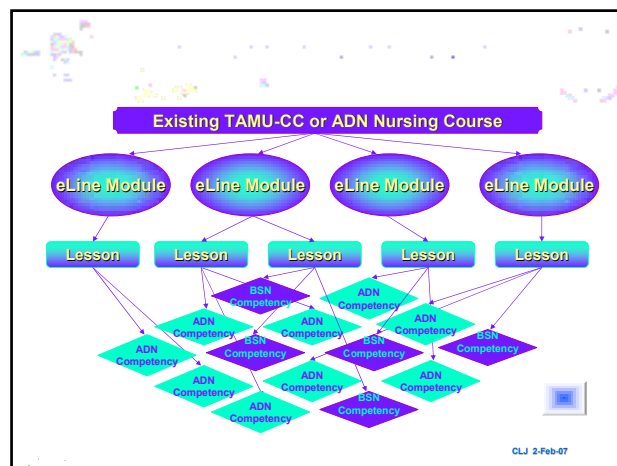


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Lessons Learned

- Rear View Mirror Theory
 - Technology Use
 - Learning Anytime, Anywhere
 - Well Sorta, kinda!!



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Works but Not Enough

- Critical Thinking = Clinical Thinking
 - Experience, Experience, Experience
- Health Professions Education Challenges
 - Hours, Sites, Faculty, Delivery Changes
- Technology not being used



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Comp USA



- Computer Assisted Instruction
- Low-fidelity cases
- Human Patient Simulators
- Task Trainers
- Haptics
- No First Person Shooters

Doom 3!

RULSELL

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Explore & Peoples

- Lt Gen (Ret) P.K. Carlton **06:30 AM!!!!**
- 91 Whiskey – Col (Ret) Al Morgan
- DARPA – CDR Russ Shilling - ONR
- MOVES Institute
- Encouragement – Need \$\$\$\$

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Agency Rounds & Rounds & Rounds & Rounds.....

- Nursing Shortage
- 80 Hour Work Week
- Physician Shortage
- Care Delivery Changes
- Patient Safety
- Net Generation
- Bioterrorism
- Future Pandemics

That's Very Interesting

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A Champion!

- Congressman Solomon Ortiz
- Florencio Rendon
- Mac King
- Fernando Gomez
- Doug Matties
- Sheila McCready

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Once begin the dance of legislation, and you must struggle through its mazes as best you can to the breathless end – if any end there be.
Woodrow Wilson

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“The Dance”

- Bill Introduced
- Placed on Legislative Calendars
- Numbered
- Conference Committee
- Assigned to Committee
- Floor Consideration of the Conference Report
- Hearings
- Presidential Signature
- Mark-Up

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Key Terms

- Authorized
- Appropriated
- Majority Party!
- Roller Coaster
 - Yes! No! Well, Maybe ...and then again! & again!



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**The Check is NOT
in the Mail!!**



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Briefings → C³

- Clear
- Concise
- Cogent

Be clear, be
brief, be
gone!



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Prepare

- What do you want?
- Why should Congress fund it?
- Who will benefit?
- Why is this issue critical?
- When do you need the \$\$\$?
- How will it be used?
- What are the plans to transition the program?
- Who is involved?



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Concerns & Challenges

- Looming Physician Shortage
 - 200,000 – 2020
 - 80 hour work week = ↓ skill acquisition
- Nursing Shortage – Staff & Faculty
 - 12% Faculty Shortage
 - 147,000 Students Denied Admission
 - 1,000,000 Positions – 2010



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Concerns & Challenges

- Care Delivery Pattern Changes
 - Increased Intensity of Care Needs
 - Fewer Opportunities for Clinical Practice
 - Less Teaching Time
 - Larger Number of Procedures with Increased Complexity
- “To Err is Human” Institute of Medicine Report



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Changes & Challenges The NetGen

- > 1982 – 88 M
- ‘Cool to be Smart’
- 89.5% Computers
- 63% Net Savvy
- 14.3% 3-4 Yrs Use the Net!
- 10,000 Video Games
- 250,000 e-Mails
- 500,000 Commercials
- 20,000 Hours – TV
- 10,000 Hours – Cell Phone
- <5,000 Hours – Reading

US Census
Pew Study 2005
Tapscott, 2005
Prensky, 2003



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Tipping Point

- ↓ Battlefield Fatalities
 - Improved Treatments
- ↑ Combat Wounds > 20,687 (10/2006)
 - Amputations
- Kevlar Body Armor = New Pattern of Complex Injuries
- Survival – Bomb Blast; Gunshot; Shrapnel; RPG; Mortars; Burns; MVA



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\$\$\$ Are Coming – Now What?

- Be careful what you ask for, you might get it!
 - Blonde!!!!
- Games for Health, Madison, WI
 - Ben Sawyer – Shepherd
 - Russ Shilling – A Voice of Moderation in the Wilderness



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Grocery Shopping

- Escorts:
 - Ben Sawyer
 - CDR Russ Shilling
 - CAPT (Ret) Paul Chatelier
- BreakAway Ltd!!!! Eureka
 - Doug Whatley, Yes!!!
 - Joe Biglin & Walter Cheek
 - Ed Fletcher



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Details

- Loading Case
 - Shock
 - Hypovolemic
 - Septic
 - Tension Pneumothorax
- ATLS Etc. Benchmarking
- Subject Matter Experts
 - Bethesda National Naval Medical Center
 - Dr. James Dunne
 - Dr. Christie Quietmyer
 - LT Edward Lopez
 - Corpus Christi
 - Dr. Derrick Nelson
 - Dr. David Miller
 - Dr. Matt Ficenec
 - Frank Locascio, RNC
 - Scott & White Medical Center
 - Dr. Don Daniels
 - Dr. Andy Strohmeyer



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Assessment & Evaluation

- Evaluation Experts
 - Dr. Jan Cannon-Bowers – University of Central Florida
 - Prof. Bob Stone - HFI Defence Technology Centre, UK
 - Dr. Harry O'Neil – University Southern California
- Measures & Metrics
 - Link Learning to Performance
 - Intention→Processes→Outcome
 - High-performance Visualization



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Embedded Evaluation

■ Summative Evaluation

- Demonstrate effectiveness;
- Determine how to augment certification/exams;
- Training impact on organizational outcomes.

■ Formative Evaluation

- Inform subsequent design;
- Determine how to best provide feedback, remediation & progression;



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Development Environment

Studios – TAMU-CC & Hunt Valley

Project Manager
Exec Producer
Producer
Designer
Evaluation Team – 3+
Instructional Designer
Programmers – 5
Artists/Animators – 9
IT Manager
Project Writer
Students – 4
Exec Assistant

■ Motion Capture Lab Motion Analysis

Hawki Digital Real-Time Tracking System
Eagle 4 Digital System



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Today, February 8, 2006

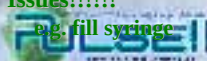


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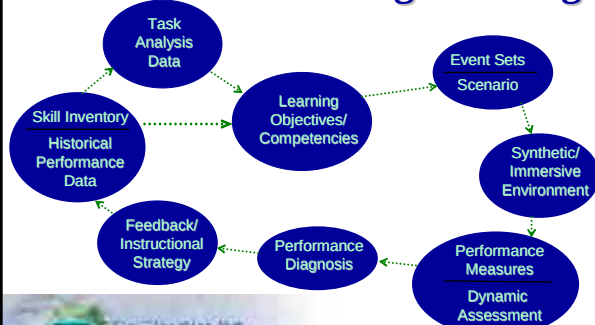
Program Milestones

- Project Funding & A Home
- Contracting Partnerships
- Prototype Cases
 - Post-Degree Discipline's Curricula
 - Case Storyboards Complete
 - Accreditation Standards, e.g. ATLS
- Soft Tissue & Fine Detail Issues!!!!!!
e.g. fill syringe

SME Database ☺
Pulse!! Advisory Council
Assessment & Evaluation Plan & Experts!!!
Verification Measures
Validation Strategies
Beta Test Sites & Dates
☺☺☺☺
Co-PI's for Evaluation'



Case-Based Learning/Training



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Beta Site Testing

- National Naval Medical Center –
Bethesda, Dr. James Dunne
- Yale School of Medicine
Dr. Kirk Sherry
- Johns Hopkins School of Medicine
Dr. Eric Jackson



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“Multidisciplinary Team”

- Medicine
- Nursing
- Computer Science
- Theatre
- Public Health
- Engineering
- Graphic & Digital Art
- Physics
- Gaming
- Human Systems Integration
- Psychology
- Business
- Economics
- Animation
- Journalism
- English
- Political Science



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The Way Ahead

- Build a National Agenda for Simulation – \$\$\$\$
- Integrate Simulation at All Curricula Levels in the Health Professions
- Multi-Institution Validation Studies
- Cost-Benefit Analysis
- Integrate Competency-based Training with Traditional Education



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The Way Ahead

- 9 Cases 2007 – 2008
 - Interrelated
- Logical Progress through the Body
- Contracts – The Best of the Best!!!



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