Systems Engineering
Experience Accelerator – RT16

Hypothesis: By using technology we can create a simulation that will put the learner in an experiential, emotional state and effectively compress time and greatly accelerate the learning of a systems engineer faster than would occur naturally on the job.

Workforce Demographics

Experience Accelerator Goals
To build insights and "wisdom" and hone decision making skills by:
- Creating a "safe", but realistic environment for decision making
- Exposing the participants to the "right" scenarios and problems
- Providing rapid feedback by accelerating time and experiencing the downstream consequences of the decisions made

Transforming SE Development
- We postulate that the new paradigm must be:
  - Integrated: Provides an integration point of multi-disciplinary skills and a wide range of Systems Engineering knowledge in a setting that recreates the essential characteristics of the practicing environment.
- Experience Based: Providing accelerated learning opportunities through experience-based interactive sessions.
- Agile: Allowing for quality, timely development of course material that is most appropriate for the target students.
- Time/Cost Efficient: Compressing multi-year lifecycle experiences into a much shorter period of time.

Emphasis on Open System Architecture

Experience Accelerator Team
- Experience Design:
  - Alice Squires – Stevens
  - Rick Abel – consultant
  - John Griffin – consultant
  - John McKeown – consultant
- Evaluation:
  - Bill Watson, CoP – Purdue
  - Petra Dominick – Stevens
  - Dick Rally – Stevens
  - Dana Ruggiero – Purdue
- Technology & Tools:
  - Jon Wade, PI – Stevens
  - George Kamberov – Stevens
  - Brent Cps – Stevens
  - Vinny Simonetti – Stevens
  - Raji Mungan – Purdue
- Simulation:
  - Doug Bodner – Georgia Tech
  - Pradeep Jasahar – Georgia Tech

Framework and Applications

Prototype Feedback Loop

Challenge: Needs and Wants
- Poten-al Phase 2 work
- UAV KPMs:
  - Cost
  - Quality
  - Schedule
- Benefits:
  1. Increased ability to leverage existing abilities
  2. Ability to technology as it evolves
  3. Reduced development time and overall cost

Multi-Threaded Java Server Architecture

Future Work
- Capabilities:
  - Expand first-year prototype with additional capabilities
  - Expand set of challenges and landmines
  - Include cost objectives
  - Enhance user profile and competencies addressed
  - Enhance simulated world features and character interaction
  - Add features to user develop
- Development Productivity
  - Improve content creation and development tools
    - Dialog authoring
    - Artifact creation
    - Event descriptions and triggering
  - Make Open Source Ready
    - Documentation
    - Source control and defect tracking
    - Port to open development environment
- Evaluate Learning Efficacy
  - User Feedback
  - Develop more detailed feedback linked to competency model
  - Outcomes assessment
  - Establish outcomes assessment plan
  - User reactions
  - Behavior change / performance improvement measures

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