

Army Excellence [AXL]: Accelerating Tacit Knowledge Acquisition in Leaders

2001 - 2008

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Background

The Army Excellence in Leadership (AXL) project was a collaboration between the University of Southern California's Institute for Creative Technologies (ICT) and the U.S. Army Research Institute (ARI) aimed at supporting tacit knowledge acquisition in military leaders. One of its key outcomes was AXL.Net, a prototype web-based immersive technology designed to enhance case method instruction for U.S. Army leader development.

The need for such a system arose from the complex environments in which junior Army leaders operated. Traditional leader development methods had not adequately prepared them for unforeseen challenges. Research on practical intelligence in military leadership underscored the importance of interpersonal, intrapersonal, and organizational tacit knowledge, which had been gained through experience and reflection. The case method teaching approach was widely recognized as a means to accelerate such knowledge acquisition by allowing leaders to analyze and learn from realistic scenarios.

AXL.Net built on prior work, incorporating filmed case studies with interactive features that facilitated a deeper understanding of leadership challenges. It leveraged Web 2.0 technologies to provide an engaging and user-friendly learning environment that enabled students to analyze scenarios, reflect on decisions, and discuss their insights in a structured manner.

Objectives

AXL.Net was designed with three primary objectives:

- **Develop a Pedagogically-Sound Research Prototype:** Ensure the system aligned with established educational theories and case method teaching principles.
- **Integrate Cutting-Edge Technologies:** Leverage web-based and multimedia innovations to enhance the traditional case method approach.
- **Ensure Ease of Use and Accessibility:** Provide a seamless learning experience for Army leaders that facilitated engagement, interaction, and effective knowledge transfer.

To achieve these objectives, AXL.Net incorporated several features:

- **Filmed Case Studies:** Narrative-driven scenarios such as Power Hungry and Tripwire provided realistic leadership challenges.
- **Interactive Multimedia Tools:** Video bookmarking, character interviews, and guided analysis exercises mimicked real-world decision-making processes.
- **Structured Discussion Facilitation:** The system enabled small-group interactions, allowing leaders to explore different perspectives and refine their judgment.

- **Adaptive Learning Features:** Tailored feedback and branching question paths adapted to individual user responses, fostering deeper reflection and comprehension.

Results

An evaluation of AXL.Net was conducted in 2006 using the Tripwire cultural awareness module. The study included 55 Army officers across three installations, assessing their engagement, learning outcomes, and overall reactions to the system. Key findings included:

- **Positive User Engagement:** Officers found the filmed case studies highly engaging, with strong preferences for this approach over traditional text-based or PowerPoint-based instruction.
- **Enhanced Learning Outcomes:** Participants demonstrated improved judgment in decision-making scenarios following their engagement with the AXL.Net module. A significant increase was observed in their ability to recognize and prioritize critical cultural issues.
- **Cognitive and Emotional Impact:** Officers reported that the system stimulated their thinking and encouraged them to reflect on leadership challenges from multiple perspectives. Additionally, the positive effect experienced during the training was linked to improved learning outcomes.
- **Strong Transferability:** Participants indicated that the lessons learned from AXL.Net could be directly applied to real-world leadership situations, reinforcing the system's effectiveness in leader development.

These results highlighted the potential of AXL.Net to enhance leader training by offering an immersive, interactive, and flexible case method learning experience.

Next Steps

Building on the successful evaluation of AXL.Net, several next steps were identified to refine and expand its impact:

- 1. Enhance System Feedback Mechanisms:** While user reactions were generally positive, some officers expressed a desire for more feedback during training exercises. Future iterations of AXL.Net would integrate additional real-time feedback and assessment tools.
- 2. Expand Case Study Library:** Developing new filmed scenarios and text-based cases would provide a broader range of leadership challenges, increasing the system's applicability to different operational contexts.
- 3. Improve Character Interaction Features:** Refining the virtual interview functionality and incorporating more nuanced character responses would enhance the realism and depth of engagement.
- 4. Increase Instructor Involvement Options:** While AXL.Net was designed for self-guided learning, enabling greater instructor facilitation could enhance learning outcomes. Providing instructors with tools to customize scenarios and lead discussions would add flexibility to the platform.
- 5. Leverage Emerging Technologies:** Exploring the integration of AI-driven adaptive learning, virtual reality (VR), and augmented reality (AR) could further enhance the immersive experience and effectiveness of AXL.Net.

By continuing to evolve AXL.Net, the AXL project aimed to further improve leader development methodologies, ensuring that junior Army leaders were equipped with the tacit knowledge necessary to navigate complex and unpredictable situations effectively.

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Established in 1999, the USC Institute for Creative Technologies (ICT) is a Department of Defense (DoD) University Affiliated Research Center (UARC), sponsored by the US Army. Harnessing technology, creativity, academic innovation and military-domain expertise, ICT conducts award-winning R&D in Artificial Intelligence (AI), Computer Graphics, Geospatial Sciences, Human Performance, Learning Sciences, Modeling, Simulation & Gaming, Mixed Reality (MxR), Medical VR, Narrative, and Virtual Humans.