University of Central Florida

Guidelines for Design and Evaluation of Web-Based ADL Applications

Background: According to the Department of Defense (DoD) plan for Advanced Distributed Learning (ADL), the vision of training technology is to ensure that DoD personnel have access to the highest quality education and training that can be tailored to their needs and delivered cost-effectively, anytime and anywhere. DoD has established the Joint ADL Co-Laboratory in Orlando to support the implementation of ADL within DoD. As part of the ADL initiative, the Joint Co-Laboratory is to provide technical assistance to program managers responsible for the development and fielding of ADL systems.

Objective: The proposed work will support the Joint ADL Co-Lab effort by providing the following technical assistance:

- Develop a set of guidelines for the design and development of ADL web-based applications,
- Develop a set of guidelines for the evaluation of ADL web-based applications,
- Establish a research test bed to provide demonstrations of effective ADL applications that will provide documentation of the capabilities, limitations, costs, benefits, and effectiveness of advanced distributed learning, and
- Provide a repository of information (paper-based) derived from the effort.

Schedule: The first set of draft design guidelines (version 1.5) is now available and is

accompanied by a set of draft evaluation checklists. Guidelines will be added and iterative improvements will be made to the existing set of guidelines based on their application to prototypes and the "lessons learned" from these applications. Version 2.0 is scheduled to appear in Sept 2001 and updates should appear at various intervals after that. The final set of design guidelines will be delivered in March 2003.

Status: In version 1.5, guidelines are identified in the areas of Web design, instructional design, and multimedia design. The guidelines, now arranged by topical areas, will be reorganized using a generic systems design model in a future update of the guidelines. In addition, version 1.5 provides a set of checklists, for use by instructional designers and Web developers, to check compliance with the guidelines. Significant progress has been made on development of user evaluation rating scales, derived from the Web design guidelines, that can be used by a learner/user to evaluate the user-friendliness of the instructional system.

Interservice Participation and Applicability: This effort involves the participants of the Joint ADL Co-laboratory, Air Force Agency for Modeling and Simulation, Naval Air Warfare Center Training Systems Division (NAWCTSD), Florida State University, and the University of Central Florida's Institute for Simulation and Training (IST). Applicability extends to contractors, instructional developers, managers, and instructors in the DoD and federal government. IST is conducting the research under contract to the NAWCTSD.

Support of ADL Functional Requirements (accessibility, interoperability, adaptability, durability, reusability, and cost-effectiveness): In recent years there have been significant advances in information and instructional technology. The guidelines will address optimal strategies for applying these advances to meet the ADL functional requirements. The strategies include exploiting existing network-based technologies and creating platform-neutral, reusable course content to lower costs. The learner is the center of the Department's strategy. The guidelines will address the need of service members and civilians to access instructional components from remote locations to receive "just-in-time" learning, adapted to individual and situational needs. Guidelines will be developed to support the Department's Shareable Content Object Reference Model (SCORM) specification.

Benefits: The results of this effort will provide DoD with an overview of web-based ADL capabilities that can be used in a variety of courses. Course content, developed through use of the guidelines in support of the SCORM specification, will leverage organizational knowledge and personalize learning. This should lead to reduced development costs for additional courses, facilitate the tailoring of instruction to individual learner's needs, and will decrease costs associated with updating curriculum. Studies conducted by the Institute of Defense Analysis suggest that the use of individualized technology-based instruction may reduce the cost of instruction by about one third. The data suggest that either the time of instruction may be reduced by about one-third, or the effectiveness of instruction may be increased by one-third.

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