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Making Improvements to The Army Distributed Learning Program

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The Army Distributed Learning Program (TADLP), established in 1998, is part of the Army’s training and leader development system and supports execution of the Army’s training and leader development strategies. Distributed learning (DL) enhances and extends traditional approaches to learning by making use of multiple means and technologies to enable the delivery of training and learning wherever and whenever soldiers and leaders need it.

DL capabilities, especially the ability to provide learning “anytime, anyplace,” are becoming increasingly important in supporting the Army’s training and leader development system. Requirements are expanding, as is the need to export training and learning to satisfy those requirements. Training and education programs that support enhanced leader adaptability and complex thinking skills are especially needed. The training system also has to address such factors as the demands of equipment modernization, modularity, increases in the size of the Army, and the current operating environment. Thus, both the amount and the complexity of needed training have increased. Moreover, the demands of supporting major operational requirements, including Afghanistan and Iraq, have limited the Army’s ability to increase the time soldiers spend in institutional schoolhouses.

The need to expand the amount of exportable learning has been further emphasized by Army Force Generation (ARFORGEN), a cyclical readiness process that places great demand on the scheduling of institutional courses and limits the length of time that soldiers can spend at a schoolhouse (away from home station). To support ARFOR-
GEN, much of institutional training must be completed in the narrow window (of about six months for the active component [AC] and one year for the reserve component [RC]) between the time a unit returns from an operational deployment and when it begins collective training. Given this context, DL has been recognized as an increasingly important part of the Army’s training and leader development strategy, and the Army has identified the need to transform training and leader development programs in a major way through increased use of DL.

Despite a growing recognition of the role to be played by DL, resources for producing courseware within TADLP are limited and declining. In 2008, TADLP received only enough funding to develop a small fraction of the total institutional requirement. Further, as of January 2008, funding for TADLP for FY 2006 through FY 2011 had decreased by 40 percent from the amount budgeted three years earlier. Moreover, budget figures reveal that the production of DL courseware is receiving less emphasis over time, with a greater proportion of TADLP funds going toward the Army Learning Management System (ALMS) and DL classrooms. Considering the growing importance of DL within the Army’s training, in FY 2007–2008, the Army’s Training and Doctrine Command (TRADOC) asked RAND Arroyo Center to assess TADLP’s performance and provide options for improvement, both in the near and longer terms. By agreement with the sponsor, the project focused on the courseware that most directly supports readiness.

**Methodology and Approach**

The study was done in three stages, the first two focusing on the near term, and the third focusing on the longer term. In the first stage (see Chapter Three), we used data from FY 2006 (and informal spot checks in FY 2007–2008 to ensure continued validity) to assess TADLP’s program for developing interactive multimedia instruction (IMI) courseware against five measures of effectiveness for readiness-related courses: impact, efficiency, quality, cycle time, and responsiveness. In the second stage (see Chapter Four), we developed options for improving the IMI
program (as it existed up through 2008) to address the areas of weakness identified in the first stage. Finally, in the third stage (see Chapters Five through Seven), we developed and outlined options for broadening the current TADLP beyond its mainly IMI focus to increase its impact, quality, and responsiveness, and for improving efficiency.

The study drew upon a variety of methods and sources, including reviews of relevant policy and program documents; analysis of Army institutional course management data and other databases; project-developed surveys concerning specific DL courses; interviews and focus groups with proponent schools, DL contractors, and TRADOC headquarters staff; reviews of Army processes for developing courseware; and an analysis of the quality of selected IMI courseware.

Conclusions

TADLP Courseware Has Had a Narrow Focus That Limits Its Potential

The study’s examination of the state of TADLP found that up through 2008 the program has had a relatively narrow focus on one approach to DL. With a small budget and limited support in TRADOC for moving away from traditional residential approaches, the program has focused primarily on producing stand-alone IMI (i.e., stand-alone computer-based instruction not needing instructor support), which focuses on the learning and comprehension of facts, concepts, and procedures in preparation for resident training.

Our Assessment Showed a Need for TADLP Improvement with Regard to All Measures of Effectiveness (MOEs)

- **Limited impact on training.** After nearly a decade of operation, DL training represents only a small fraction of the total amount of institutional training. In FY 2006, only around 100 of the 227 funded Army DL modules in the highest-priority categories (i.e., reclassification courses, Noncommissioned Officer Education System (NCOES) courses, RC Captains Career Courses, additional skill identifier/special qualifications identifier [ASI/SQI]
courses) had any enrollees, and the majority of those that were in use produced less than 200 graduates in FY 2006. Moreover, outside of ASI/SQI courses, DL accounted for less than 6 percent of all instruction in high-priority courses, with a considerably lower percentage for AC soldiers.

- **Signs of inefficiency.** The efficiency of the Army’s program has been limited by a large percentage of funded courses that do not achieve enrollments or are used for only a few years after initial development is complete. The program is also limited by a relatively small number of enrollees per class, and low graduation rates.

- **Concerns about courseware quality.** We found no efforts in TADLP through FY 2008 to assess course quality at the program level. Therefore, Arroyo developed an approach to IMI evaluation that focused on technical criteria and instructional design of content. The application of this methodology to a small sample of DL courses revealed some potentially significant issues about the quality of TADLP courseware, especially with regard to the pedagogical characteristics of the instruction.

- **Long cycle times.** Through 2008, the amount of time required to produce a DL course under TADLP has been overly long. The average course production time, from the need identification to the first student use, is nearly 3.5 years. In some cases, DL courses have been declared obsolete even before they could be completed. In the commercial world, a comparable cycle time is estimated at less than a year.

- **Lack of responsiveness.** Responsiveness is the ease with which courseware can be adapted in response to changing requirements. During the period of the study, the Army used the simplest, least flexible approach in its acquisition strategy for acquiring IMI courseware. That acquisition strategy, coupled with a policy that made it difficult to update courseware on a timely basis, made DL courseware unresponsive to changing requirements.
TADLP Lacks a Structured Process for Evaluation, Assessment and Improvement

A major issue with TADLP is the lack of an overall process and supporting data for evaluation. This shortcoming severely impedes the Army’s ability to identify the underlying causes of the shortfalls in TADLP performance, design effective improvement initiatives, and verify their success. Moreover, our assessment shows that such a process is feasible.

The Potential Exists to Significantly Expand the Role of DL in Army Training

Our research concluded that there is great potential for DL expansion, provided that TADLP is able to move beyond the almost exclusive focus on stand-alone IMI to deliver instruction. The program can use DL both to provide more training and to train more-complex skills. Current practices in industry, in academia, and even in some emerging Army initiatives suggest that the Army can make a much greater proportion of structured training flexible and exportable, especially for the AC.

Recommendations for Improving the IMI Program

In the course of our examination we gained an understanding of some of the key factors that underlie the areas needing improvement. We identified five near-term initiatives that would increase the impact of the Army’s IMI program, increase the quality of the product, and improve the efficiency and responsiveness of the process.

Add flexibility to the courseware acquisition strategy. The Army’s acquisition strategy could be made more flexible and effective by focusing on requirements contracts—which would “prequalify” a set of prime contractors for DL development in focused areas—and by selectively using both a systems (as opposed to product) output philosophy during acquisition planning and an incremental acquisition approach for complex IMI. Decentralizing contract management and administration could lead to further increases in responsiveness.
Ensure sufficient resources per training module for stand-alone IMI. The Army’s approach to developing IMI has assumed that schools can adequately support courseware development, which was seldom the case. When such support was not available, the result was an extended cycle time and compromises in courseware quality. We recommend that the Army add more resources when needed on a per-course basis to cover such categories as subject matter expert support for development and instructor support to students during course delivery. In the short run, this would mean funding fewer DL courses, but the improved outcome will eventually lead to an increased return on investment through greater usage of DL content.

Undertake systematic process improvements to reduce IMI cycle times for production. There are a number of known issues that appear to have contributed to long development times, including too many steps and required signoffs in the production process. Although TRADOC has implemented a number of initiatives to reduce cycle time, additional improvements are possible through such actions as releasing IMI funds at the beginning of the year and continuing and refining the application of process improvement methods.

Increase local participation in IMI production and contract administration. To achieve multiple improvements in program outcomes, we recommend two ways for TADLP to increase proponent participation in IMI production. First, TADLP should increase the practice of producing some IMI in house. Proper selection of content for local production of IMI can reduce variable costs and cycle time, and it can also increase IMI’s responsiveness to the need for change. Second, in cases where IMI production must still be contracted out, TADLP should decentralize selected aspects of contract management and administration in order to increase the responsiveness and the quality of the IMI product.

Institute a program-level IMI quality evaluation component to support TADLP improvements. A courseware quality assessment focusing on the instructional design and technical features of IMI courseware could be accomplished by TADLP with relatively modest resources. The results could form the basis for program-level improvements in DL. Other types of course quality evaluations should also be
added over time, such as assessing courseware currency, learner reactions, and knowledge retention.

**Recommendations to Broaden TADLP to Better Support Training and Leader Development Requirements**

An overall finding from our analysis is that TADLP plays an unnecessarily limited role in support of the Army’s programs for training and leader development. Leveraging expanded DL capabilities (and mobile training team (MTT)) methods has the potential to create a much more exportable training capacity in support of leader development and the Reset cycle under ARFORGEN. Such changes could help to significantly reduce the length of residential courses, better support unit readiness, and reduce the backlog for NCOES courses. Below we outline three recommendations for broadening TADLP to accomplish more.

**Employ Blended Learning Options to Significantly Expand DL’s Role**

We recommend that the Army use a broader range of DL options in addition to stand-alone IMI. A mix of approaches, such as those shown in Table S.1, can be used to extend the reach of DL. For example, key mechanisms supporting a more widespread transformation include evolution of an IMI approach that allows greater instructor support and greater use of collaborative DL to replace a large portion of resident classroom discussion hours.

Many private-sector organizations requiring DL are using a mix of approaches within a single course—resulting in a “blended learning” approach, which not only combines DL with face-to-face instruction, but also blends various types of DL. This new type of course is constructed by considering all potential modalities for delivery of training on a task-by-task basis, leading to a distribution of different modalities across an entire course.

A few courses in the Army (although outside of TADLP) are also beginning to use blended learning methods. For example, the application of blended learning options reduced the 7.5-week Special Forces
### Table 5.1
**A Wider Range of Options for DL**

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>IMI Levels 1–3, Stand-Alone</td>
<td>Allows students to access courses anywhere, anytime; instruction is embedded in the technology, thus requiring limited interaction or collaboration with instructors</td>
</tr>
<tr>
<td>IMI Levels 1–3, Instructor Supported</td>
<td>Uses technology to deliver content, but makes instructors available to monitor and support learner progress, respond to student questions, and provide feedback</td>
</tr>
<tr>
<td>IMI Level 4, Asynchronous</td>
<td>Uses “serious games” to provide learners with an immersive experience at high levels of interactivity</td>
</tr>
<tr>
<td>IMI Level 4, Synchronous</td>
<td>Involves simulations and serious games using multi-sided interactions with two or more players or multiple role players, as well as artificial intelligence and instructors</td>
</tr>
<tr>
<td>Asynchronous Collaborative DL</td>
<td>Uses technology to enable communication between student and instructor and among students via email, forums, discussion boards, telephones, wikis, etc.</td>
</tr>
<tr>
<td>Synchronous Collaborative DL</td>
<td>Involves real-time collaboration between students and instructors</td>
</tr>
<tr>
<td>Mobile Training Teams (MTTs)</td>
<td>Provides face-to-face instruction to learners at their locations rather than at the schoolhouse; though not technically a DL approach, this method can be used to export training</td>
</tr>
</tbody>
</table>

**NOTE:** In general, IMI levels refer to the degree the student must interact with the IMI material, with IMI Level 1 being the lowest and IMI Level 4 the highest. For a more complete definition of IMI levels, see Chapter Three.

Advanced Noncommissioned Officer Course (ANCOC) to 3.5 weeks in residence. In addition, a new version of the Basic Noncommissioned Officer Course (BNCOC) Common Core used IMI and asynchronous DL methods to create a flexible learning environment in which students can take the course anywhere and anytime over a 90-day period.

**Integrate TADLP with Knowledge Management (KM)**

TADLP has primarily been using DL to support learning in structured courses. But the Army has started to implement a construct in which unstructured collaborative learning and self-development also
play a large role in leader development strategies. As a second area for broadening TADLP to better support the Army’s training and leader development needs, the Army should pursue opportunities to integrate TADLP with KM learning delivery programs, which involve the use of web-based support for soldier and leader learning outside the framework of formal school courses. KM learning delivery programs are included within the Center for Army Lessons Learned (CALL) and the Battle Command Knowledge System (BCKS). BCKS includes numerous forums, including some within TRADOC and others in U.S. Army Forces Command. Both CALL and BCKS provide support to leaders, staff, and soldiers with access to updated tactics, techniques, and procedures; operational insights and other lessons; and a collaborative capacity to support short-term operational knowledge needs. Soldiers can access this support in several ways, including online repositories, through Requests for Information (RFI), and community forums.

KM learning delivery programs represent a key set of DL capabilities to complement TADLP’s support of structured courses. For the TADLP TRADOC Capability Manager (TCM), the biggest need is to establish a more collaborative, mutually supportive effort between the schools’ instructors and training and doctrine developers on the one hand, and the CALL and BCKS programs on the other.

Enhance Key Management Functions to Achieve TADLP Transformation

This research identified important directions the Army could take both to improve the IMI-focused DL program and, more importantly, to broaden TADLP beyond IMI to better achieve its larger goals. Generating real movement in these directions will involve a significant change and require a management effort considerably larger than that needed to keep the TADLP moving along its current path. In addition to the integration of KM and TADLP described above, we have identified four additional management functions for improvement to support these directional changes. Because the TADLP TCM has the responsibility to “develop and implement policies and programs for TADLP throughout the Army training environment,” the TADLP TCM should be the lead agent for improving these functions.
Institute a program-level evaluation component. Key to program management and improvement is the establishment of a means to evaluate the program to support needed improvements and timely adjustments. Our overall finding is that no systematic evaluation and assessment program is in place at the program level. Clearly, program evaluation and assessment is a critical TCM function, not only for program management but for making an effective case for resources and support. We argue that this function is one needing immediate improvement, and that an effective system could be established based on the methodology outlined earlier in this summary.

Starting with the methods piloted by Arroyo, TRADOC could begin to evaluate the impact, cost-effectiveness, quality, and responsiveness of courseware. Our assessment of impact, cost-effectiveness, and responsiveness was accomplished using available data, and so beginning the implementation would require only the development of a process for collecting and analyzing available data.

Develop concepts, plans, and directives for TADLP transformation. The TCM’s office must orchestrate and support the movement of institutional training from a resident-based approach to one that is more DL-based and that includes learning outside the bounds of structured courseware. Increased coordination, integration, and collaboration across the Army will be needed to achieve the Army’s DL goals. Central to a successful transformation will be evaluation and assessment of ongoing TADLP training, the development of concepts and plans for an expanded DL program, the implementation of a spiral development approach to achieve evolutionary transformation, and increased representation of the user in the acquisition of required DL support materiel (e.g., DL classrooms and learning management systems). A successful approach will also involve greater collaboration across a wide range of stakeholders, including the proponent schools and unit customers.

Implement a spiral development approach. The use of a spiral development approach will be key to implementing changes and expanding the use of DL. Spiral development is a method of rapidly implementing change while simultaneously allowing for ongoing assessment and improvement. Under this process, an initial version of
a product or program (such as a DL course) is developed as a kind of work-in-progress. This gets a working prototype fielded and piloted early, while also allowing it to be assessed, refined, and revised in stages. Once an improved version of the product or process is fielded, the process of assessment and revision continues in a new cycle.

**Perform combat developer role.** Combat developer responsibilities are to specify requirements for materiel systems and to represent the user community through the process of materiel development and fielding. An important TCM role is to serve as the combat developer for technology that supports TADLP execution. Because the execution of DL is heavily dependent on technological capabilities, achieving an expanded DL program is strongly related to TCM combat developer success.

An examination of the achievements of ALMS indicates that improvement of the TCM’s performance in the combat developer role is needed, especially to generate improvement in utility and user friendliness. ALMS has been a major component of the TADLP for many years, and, as described earlier, an increasing portion of the TADLP budget has gone into ALMS. However, ALMS achievements have been limited, as evidenced by the small number of proponent schools that used the system.

The conclusion is that the TCM should improve its ability to define user requirements, obtain needed funding, test materiel developer products to ensure that they meet user needs, and provide continued general oversight of system effectiveness after fielding.

**Implications**

In this report we present options for improving the existing TADLP. We make a case for significantly expanding the use of both structured and unstructured learning to enhance the Army’s leader training and development strategies. While this represents a significant shift from existing practices, we think it is needed, for DL can and should play a larger role in the transformation of training in the Army. In addition to the detailed recommendations discussed in this report, top-down
command emphasis, willingness to change, and oversight will all be key to achieving this transformation.