

Learning at a Distance

The Potential and Perceptions of Distributed Learning

Capt. Elvin J. Fortuna, U.S. Army

Abstract

Distributed learning, as a method of instructional delivery, has the potential to reduce costs while improving learning outcomes across the Total Force. The Army's distributed learning program currently leans heavy on asynchronous, self-paced, and online modules known as interactive media instruction. In contrast, blended learning methods combine face-to-face instruction with the latest instructional technologies to achieve superior learning outcomes. Distributed learning, with best practices such as blended learning, can be effective and engaging. Many of the challenges regarding distributed learning can be mitigated and overcome through the support of Army University, the integration of the Army's distributed learning efforts, and the dedicated efforts of expert Army educators.

The Army must continue to invest in its leaders while facing an increasingly resource-constrained environment. In the face of decreasing budgets, distributed learning has the potential to educate the Total Force with significant cost savings. Although recent research reflects that student learning outcomes through distributed learning are identical to those for face-to-face instruction, significant perceptions and faculty critiques about the processes and challenges in its design, development, and implementation persist.¹ Confronting the perceptions of distributed learning that prevent the Army from realizing the full potential of this medium of instruction requires that Army University take the lead in addressing these perceptions.

The Army defines distributed learning as the “delivery of standardized individual, collective, and self-development training and education to soldiers, Department of the Army civilians, units, and organizations at the right place and time through the use of multiple means and technology.”² Distributed learning is delivered “at ... the right time ... [through] synchronous, asynchronous, or blended” learning

technologies.³ Distributed learning is delivered “at the right place” through resident and nonresident options.⁴ Distance learning is a subset of distributed learning that does not require the physical presence of an instructor.⁵ The methods of instructional delivery are limited only by the ever-expanding choices of technologies available in the market. Figure 1 (on page 54) shows the full array of distributed learning options for The Army Distributed Learning Program (TADLP).

Distributed learning is integrated into the Army learning model as found in U.S. Army Training and Doctrine Command (TRADOC) Pamphlet (TP) 525-8-2, *The U.S. Army Learning Concept for 2015*. The Army learning model is a “framework comprised of elements that together create a learner-centric, career-long continuum of learning that is continuously accessible and provides learning at the point of need in the learner’s career.”⁶ It is integral to implementing the Army learning model through the delivery of learner-centric training.⁷ Distributed learning provides standardized training at the point of need for the Army learner and delivers individual, collective, and self-development modules to both train and educate the force.⁸ Distributed learning technologies are thoroughly integrated in broader professional military education as well as specific training for skills needed in various organizations.

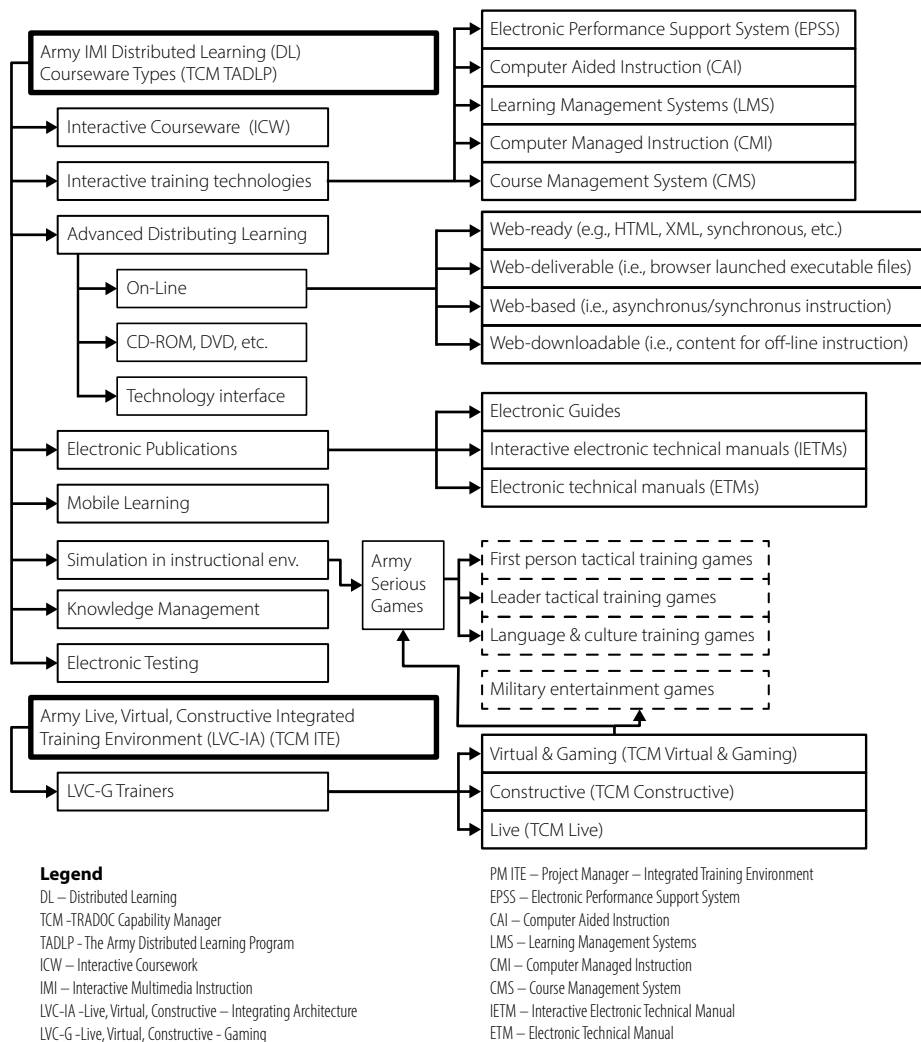
The TRADOC capability manager for TADLP (known as the TCM TADLP) provides “oversight, integration, and management direction in all matters” related to distributed learning for the Army.⁹ TRADOC capability managers (TCMs) serve a myriad of functions, to include integrating requirements in their function across all doctrine, organization, training, materiel, leadership and education, personnel, and facilities (DOTMLPF), serving as the TRADOC point of contact for assessing DOTMLPF within their function, and providing subject-matter expertise.¹⁰ The TCM TADLP has roles both as the capability manager and as director of TADLP. The TCM TADLP is organized into five functional offices (see figure 2, on page 56): strategic plans and policy, acquisition and management, capabilities and implementation, joint distributed learning requirements, and TCM mobile. The TCM mobile is a separately chartered position responsible for mobile learning initiatives and activities.¹¹

Current Efforts in Distributed Learning

Distributed learning content and courseware are all instructional media, whether synchronous, asynchronous, or blended, that use interactive multimedia

Capt. Elvin J. Fortuna, U.S. Army, is an assistant professor of military science in the Department of Military Science at Gonzaga University. He holds a BA in philosophy from the University of Maryland, College Park, and an MS in management from the University of Maryland, University College. He is a demonstrated master logistician who has deployed in support of Operations Iraqi Freedom and Enduring Freedom.





(Figure adapted from Mitchell L. Bonnett, "Influence of Learner Factors on Soldier Attitude toward Army Serious Gaming" [thesis, Old Dominion University, 2015])

Figure 1. Army Distributed Learning Courseware Types

instruction (IMI) as the method of instructional delivery.¹² IMI serves various training and education needs. IMI includes targeted (top-down) training directed from senior leadership such as defeating an improvised explosive device, mandatory training as found in Army Regulation (AR) 350-1, *Army Training and Leader Development*, or demand-based (bottom-up) training from operational units.¹³ The TADLP website showcases some demand-based IMI, to include a



U.S. Army Medical Department anatomy course, an adaptive thinking course, and the Emergency Operations Center Development Tool, all designed based on the needs of the field.¹⁴

A significant effort is under way to build educational applications for mobile devices such as smartphones and tablets. TCM TADLP sees the potential for soldiers to access relevant and engaging training at any point and time through a mobile device as a game-changing capability that must be capitalized upon.¹⁵ The TRADOC Application Gateway (TAG) hosts, links, and tracks mobile applications for Android and iOS platforms.¹⁶

One mobile application hosted on the TAG is the Individual Weapon System (IWS).¹⁷ This application familiarizes soldiers with the Instrumentable–Multiple Integrated Laser Engagement System (I–MILES) IWS. The IWS “simulates the effects of direct fire weapons and its effects on soldiers during force-on-force training exercises.”¹⁸ The IWS mobile application aids in understanding the IWS through engaging video of preparation, installation, alignment, and operation of the system. The application also tracks each user’s progress and offers easy access to the technical manual and other useful references. This application is free to Army learners on Android and iOS mobile platforms.¹⁹

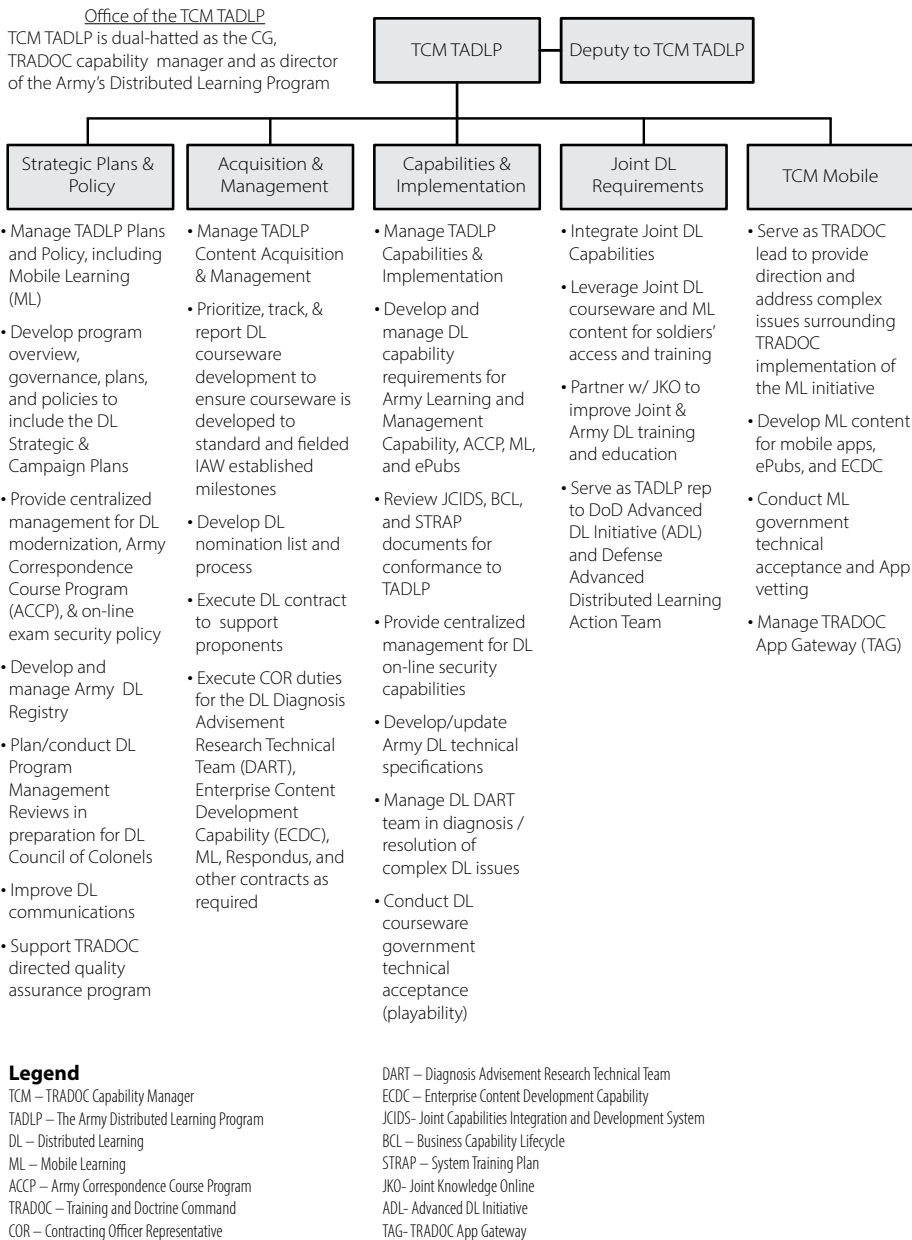
Simulations and serious gaming are an integral part of the Army’s distributed learning strategy.²⁰ While most soldiers receive more exposure to interactive courseware, simulations and gaming are growing in popularity and scope. Enhanced Dynamic Geo-Social Environment is a simulation developed for the U.S. Army and the Department of Homeland security that enables training in a simulated operational environment. It uses the Unreal 3 gaming engine to provide a multiplayer experience familiar to many soldiers accustomed to gaming in a leisure environment.²¹ It is completely customizable. Recently, it was used to train soldiers in an “Attacking the Network” scenario in the fictional village of Kuzun, Atropia.²² Enhanced Dynamic Geo-Social Environment can replicate any operational environment or scenario, from the most kinetic to the most cerebral, given enough lead time and support.

Blended learning—a mix of both distance and face-to-face instructional methods—is an area of focus for TCM TADLP. A stated goal in their modernization strategy is to “dramatically reduce or eliminate instructor-led slide presentation lectures and begin using a blended learning approach that incorporates virtual and constructive simulations, gaming technology, or other technology-delivered instruction.”²³ Blended learning can be used in a resident or nonresident environment to meet instructional goals.²⁴

Perception: Distance Learning is Ineffective

One perception of distributed learning is that it is not as effective as face-to-face instructional methods. Research in the field of distance learning can shed light on





(Figure adapted from U.S. Army Training and Doctrine Command Capability Manager for The Army Distributed Learning Program (TADLP), "TADLP Overview Presentation," (Fort Eustis, VA: TADLP, 2017), 8.)

Figure 2. Army Distributed Learning Training and Doctrine Command (TRADOC) Capabilities Manager for The Army Distributed Learning Program (TCM TADLP) Functions by Office.

the absence of validity of this perception. In a study published by the U.S. Department of Education in 2010, Barbara Means et al. published a significant historical meta-analysis for the U.S. Department of Education in 2010 to determine the efficacy of online learning. This report is widely cited for good reason; it is the most comprehensive review of relevant empirical literature of online education and offers unbiased insights into the efficacy of web-based distance learning techniques.

The researchers screened 1,132 articles for their first study; 176 of them were deemed to have enough rigor to be included in their meta-analysis. Means et al. initially determined that learners “in online conditions performed modestly better, on average, than those learning the same material through traditional face-to-face instruction.”²⁵ Interestingly, they found that blended learning—a combination of online and face-to-face learning—achieved better learning outcomes than online or face-to-face learning methods alone.²⁶ Means et al. suggest that the difference in learning outcomes between distributed learning and face-to-face may not reflect the medium for instructional delivery; instead, it “may reflect differences in content, pedagogy, and learning time.”²⁷

Means et al. note that many practices in distance learning did not effectively increase learning outcomes. In particular, they note that the inclusion of online quizzes, video, or other media do not improve learning outcomes.²⁸ This seems consistent with the researchers’ view that the delivery method for instruction is less important than the pedagogy behind the instruction.²⁹ The authors stated that agency for learners was a much more significant contributor to positive learning outcomes and that allowing learners to control and interact in their instruction yielded positive learning outcomes.³⁰

Other current research also supports the efficacy of distance learning. In their 2016 study, Joseph K. Cavanaugh and Stephen J. Jacquemin examined student learning outcomes in online courses as compared to face-to-face options. They found, in courses where both online and face-to-face instruction were available, there was little to no difference in grade-based performance.³¹

The research is supportive, overall, of distance learning as enabled by the Internet and related technologies. However, the consensus of online learning is not unanimous. Jeff Anstine and Mark Skidmore conducted a notable study in 2005 that showed negative learning outcomes for online learning. These findings point to a possible self-selection bias for learners in online environments. Anstine and Skidmore were concerned “that students with higher human capital endowment self-selected into the online format.”³² When they analyzed the results of learners that self-selected into face-to-face or online environments and controlled for the self-selection of learners themselves, they found inferior learning outcomes in the online learning environment. While the majority of the literature, especially newer research, supports online learning, further findings such as those in Anstine and Skidmore’s study may have implications for placement of individuals into ideal learning environments.



Perception: Distributed Learning Stifles Engagement

Another perception of distributed learning is that it reduces active engagement with the instructional material, therefore producing inferior learning outcomes. Dr. Liston Bailey, chief of the Learning Innovations and Initiatives Division for the Army's Institute for Noncommissioned Officer Professional Development, notes that younger learners, while digitally literate, tend to have poorer knowledge application than their older peers.³³ He posits that younger learners may have a weaker sense of agentic engagement, which he defines as the "extent to which they engage in proactive efforts to contribute to the flow of instruction and to energize their own sense of motivation to learn."³⁴ Distributed learning is flawed if digital technologies cannot fully engage learners in the educational process.

At face value, it may seem that distributed learning cannot produce the same engagement as face-to-face learning. However, the modality for learning is less important than content relevance and andragogy. Adult learners can engage with digital instruction when it is relevant to their goals.³⁵ Thoughtful course design with clearly stated goals that are relevant to the learner's goals will engage students; poor course design delivered in a "canned" format will surely disengage learners. The modality used is not the primary factor in increasing engagement.

Upon further analysis, Hiltz et al. determined that the mediating variable in these learning outcomes was not the modality but the level of engagement through active learning and collaborative techniques.³⁶ They found "differences in time devoted to class or active engagement resulting in differential outcomes."³⁷ Blended learning methods have the potential of mitigating this by allowing for more time engaging with material both face-to-face and online.

Deliberate and thoughtful efforts in distributed learning course design can engage learners and improve learning outcomes.³⁸ Distributed learning is a spectrum, ranging from stand-alone computer-based instruction to real-time interaction with facilitators enabled by conference technology and near-real-time collaboration with instructors and peers. Blended learning—combining the strengths of online and face-to-face modalities—is particularly effective and produces better learning outcomes than online or face-to-face alone.³⁹ This may be simply because a blended learning strategy increases the amount of engagement and time spent on task. In other words, more resources and channels for communication can increase engagement, whether with a computer or another person.⁴⁰



Perception: Distributed Learning is a Burden on Learners

A common complaint regarding distributed learning is that it places an undue burden on learners. AR 350-1 directs that commanders should schedule and provide time for Army learners conducting mandatory or quota-based distributed learning

during the duty day.⁴¹ While commendable, institutional support for distributed learning is not always evident. Many learners must balance the competing demands of a full-time job, family, and education. Lt. Col. Jack Judy, retired, writes that, for many learners, “schooling becomes secondary or tertiary to the distance learner versus the ‘job’ for the face-to-face learner.”⁴² It may be unrealistic to expect commanders to allow soldiers to conduct distributed learning during the duty day, at the expense of their job performance; training days, resources, and time are already limited and shrinking. This is a conflict that learners in residence do not face.

This additional requirement contributes to a negative perception of distributed learning by Army learners. In a 2012 survey, respondents stated, “commanders expected their soldiers to complete their distributed learning on their own time, thereby implying that it is a relatively unimportant component of training.”⁴³ Their commanders’ low prioritization of distributed learning contributed to the respondents’ equally low valuation of the same. In another survey, “respondents preferred in-class, because they want to concentrate on school away from distractions.”⁴⁴ It is hard to imagine soldiers engaging in a learning environment in these conditions.

The Army is not blind to these challenges. TP 525-8-2 recognizes that “soldiers complete mandatory distributed learning courses on personal time in a culture that promotes lifelong learning as an ideal, but often does not follow through with supporting actions.”⁴⁵ The authors then propose to force the issue by implementing Temporary Duty for Education, a policy that would differentiate between soldiers conducting distributed learning at home station and those conducting unit duties.⁴⁶ Others have advocated for releasing individuals from operational assignments to complete their education, whether face-to-face or by distance.⁴⁷ Whether these policies can be implemented without significant detriment to current operational demands remains to be seen.

Perception: Distance Learning Is Not as Valued as Resident Education

An additional perception of distributed learning is that it is not valued by the institution. The dearth of time allocated towards distributed learning hints towards this larger issue. Stakeholder buy-in of distributed learning, particularly by senior leaders, sets the conditions for soldiers to truly engage and commit to learning through this modality. In a recent survey, it was noted that “some stakeholders did not believe in the effectiveness of distributed learning as a modality for training” and either actively or passively resist efforts to implement the Army’s distributed learning program.⁴⁸

Many trace this attitude to previous policies in officer professional development. In 2012, Lt. Col. Jimmy C. Salazar wrote in regard to the U.S. Army Com-



mand and General Staff College that the Army reinforced the idea that resident education was superior “by only allowing the top fifty percent of an officer year group to attend CGSC as a resident student and forcing all others to complete the course by correspondence for promotion selection to lieutenant colonel.”⁴⁹ This is not the current policy; completion of resident or nonresident intermediate-level education is considered equal and noted as such on Army records. However, senior leaders who lived through this “top fifty percent” policy may have a tendency to promote a negative point of view toward distributed learning.

The Role of Army Educators

Army educators cannot afford to wait for institutional solutions to improve the quality and delivery of learning. Educators across the Total Force must incorporate blended learning in their programs of instruction now in order to foster the critical and agile thinking needed in the Army today. The benefits of a blended learning approach for the Army learner are clear. Learning outcomes for Army learners are more successful in a blended learning environment than either the traditional classroom or the purely digital environment. It follows that Army educators should gain expertise in integration and implementation of blended learning techniques throughout their careers.

Fortunately, there are many resources and technologies available for Army educators to extend and expand the classroom. Some are already offered at certain institutions at no cost. Educators should inventory the list of available instructional technologies at their institution—or available at little to no cost—and take the time to learn the enterprise capabilities available through the TCM TADLP. Collaborative technologies such as file sharing, discussion boards, wiki sites, blogging, social media, live conferencing, and other collaborative tools should be understood and integrated into the classroom. The educator must create a space for interaction and learning beyond the physical classroom that complements and reinforces learning outcomes. Educators that lack access to the tools they need to create a blended learning environment should identify the capability gap and work with the TCM TADLP to fill that gap with a suitable solution.

Army educators should understand the capabilities and limitations of IMI when it comes to meeting learning outcomes. Simply assigning IMI courses for completion may signal that the learning is unimportant or secondary to learning done in person. For this reason, careful thought must be given when assigning IMI; over-extending soldiers to meet an excess amount of learning outcomes will both fail to genuinely meet learning outcomes and degrade soldiers’ performance.

If IMI is used to meet learning outcomes, educators can take active measures to engage learners and create a blended learning environment. Educators should strive to deliver learning content when needed, regardless of time and location, based on the soldier’s schedule. The goal for the learner must be to achieve the learning out-



comes, not simply race to complete the course and generate a certificate for completion credit. If possible, IMI should be assigned with a facilitator available to answer any questions and resolve any technical issues. The message to the Army learner must be that their efforts are valid, important, and that they are not completing another online training requirement to “check the box.” IMI provides content mastery but may not provide skills mastery; experiential learning facilitated by an instructor has the potential to mitigate this gap.⁵⁰ By reinforcing and applying the skills learned in IMI modules, skilled educators can integrate IMI into a blended learning framework and draw the most benefit for the Army learner.

Army educators must clearly signal that distributed learning from accredited sources is as valued as resident education. Support for distributed learning should be clear and unambiguous. Educators should check any biases they may have in regards to distributed learning against current research in education and instruction. Moreover, educators should engage in a conversation on the potential and merits of distributed learning whenever confronted with unfounded criticism against distributed learning as a viable method of instruction. Educators that effectively use distributed learning to achieve learning outcomes should share their successes with the larger educational community and engage in active and lively discussion on the particulars of those successes. The Army’s culture can turn in favor of distributed learning only through the active and determined efforts of the educational community.

A Way Forward

Distributed learning is an effective means to meet the chief of staff of the Army’s number one priority: readiness.⁵¹ The education and training of soldiers and leaders is critical to achieving this readiness. Army University must take active steps to leverage the potential of distributed learning to improve learning outcomes for all Army learners in support of the Army’s readiness efforts. Using best practices such as blended learning, Army University can avoid the pitfalls associated with some of the perceptions of distributed learning.

The perception that distributed learning, as a whole, is ineffective is false. Army University should recognize the effectiveness of blended learning and push to create blended learning environments in all Army educational programs. Blended learning combines the best of resident and distance learning methods to provide the best learning outcomes. This effort goes beyond phased training for professional military education. This means integrating the best collaborative tools, conferencing tools, forums, and other technologies to increase interaction, learner agency, and engagement to achieve the best learning outcomes for all Army learners. Embracing blended learning means more instructors, technical support, resources, and training of personnel up front. However, this would still be less costly than educating all personnel in a resident status. Outcomes from pilot programs such as United States Army Cadet Command’s



Cadre & Faculty Development Course, a blended learning course developed for senior Reserve Officer Training Corps instructors, should serve as a starting point in reevaluating the scope and means of distributed learning in the force.⁵²

The perception that distributed learning stifles engagement is also false. Army University is best positioned to propagate best practices in distributed learning across major stakeholders in the institutional Army to ensure distributed learning offerings are engaging and improve learning outcomes for Army learners. The university's partnerships with public and private universities across the United States is a strength that must be leveraged. There are countless distance and blended learning programs throughout academia; Army University can learn from the best of these institutions and transfer those practices to the institutional Army.

The university should support the TCM TADLP in ensuring that distributed learning courses for all the university's schools, centers, and colleges offer the same robust capabilities as front-runners in the distance learning arena. The TCM TADLP is responsible for development and delivery of distributed learning courseware, while content is created by proponent schools.⁵³ Much of this content will be provided from schools and colleges under the Army University umbrella, to include Initial Military Training, the Institute for Noncommissioned Officer Professional Development, and the various centers of excellence and branch schools. It makes sense to integrate TADLP into the Army University structure—whether in a policy or coordinating role—to ensure the expertise resident within TADLP is readily available at the point of need. Furthermore, TADLP can facilitate understanding of best practices in distributed learning and integration of those practices into programs of instruction across all Army University schools and colleges. This has the potential to improve learning outcomes for Army learners.


The perception of distributed learning as a burden on learners can be mitigated using faculty, cadre, and instructors in the institutional Army grounded in distance education theory and best practices. In the mid-1970s, the Army began an effort under the banner of instructional systems development to integrate advanced instructional technologies and improve learning outcomes for Army learners.⁵⁴ The program did not meet expectations due, in part, to the lack of training of active duty military personnel and civilian technicians.⁵⁵ The program “became, to many, an excruciatingly painful experience.”⁵⁶

Army University can directly influence this perception through its Center for Teaching and Learning Excellence (CTLE). The CTLE can host workshops or seminars in distributed learning techniques and instructional technologies for a wide array of Army educators who can further propagate their knowledge to respective institutions. The CTLE can also leverage blended learning techniques to reach various institutions and improve the quality of distributed learning implementation throughout various centers, schools, and colleges in Army University. The end state should be a cadre of educators invested in distributed learning as a viable and powerful method of instruction.



Finally, Army University can help change the perception that distance learning is not as valued as resident education. Improvement of distributed learning across the board must be part of this change. Army University stands in a unique position to influence future priorities and shape the Army's thoughts and culture in regards to education and training. Integration of TCM TADLP into the Army University structure, whether in a policy or coordinating role, is crucial to ensuring that distributed learning remains a visible and vibrant part of the Army's education efforts.

Conclusion

Distance learning can educate the Army as well as live face-to-face instruction if significant distributed learning issues are addressed as part of Army University. It is imperative that the Army capitalize on this opportunity in a resource and time-constrained environment. Distributed learning programs must be fully understood, supported, and resourced with support from the Army University and in concert with TADLP. Coupled with quality educational efforts from the faculty, cadre, and instructors throughout the Army, distributed learning can contribute greatly to growing leaders who can think, execute, and win in the complex and challenging conflicts the Nation will one day enter. 

Notes

1. Joseph Cavanaugh and Stephen J. Jacquemin, "A Large Sample Comparison of Grade Based Student Learning Outcomes in Online vs. Face-to-Face Courses," *Online Learning* 19, no. 2 (2015): 6, [doi:10.24059/olj.v19i2.454](https://doi.org/10.24059/olj.v19i2.454).

2. Army Regulation (AR) 350-1, *Army Training and Leader Development* (Washington, DC: U.S. Government Publishing Office [GPO], 19 August 2014), 132.

3. Ibid.

4. Ibid.

5. Department of Defense Instruction 1322.26, *Development, Management, and Delivery of Distributed Learning* (Washington, DC: U.S. GPO, 16 June 2006), 8.

6. U.S. Army Training and Doctrine Command (TRADOC) Pamphlet (TP) 525-8-2, *The U.S. Army Learning Concept for 2015* (Fort Monroe, VA: TRADOC, 20 January 2011 [including change 1, 6 June 2011]), 16.

7. AR 350-1, *Army Training and Leader Development*, 132.

8. Ibid., 51.

9. Memorandum by Martin E. Dempsey, commander, TRADOC, 2009, "TRADOC Capability Manager [TCM] Charter," Fort Monroe, VA.

10. Carl Harris and John Robertson, "From TRADOC System Managers to TRADOC Capability Managers: Creating an Organizational Focus," *Army AL&T* (April-June 2011): 68–69, accessed 10 April 2017, http://asc.army.mil/docs/pubs/alt/archives/2011/Apr-Jun_2011.pdf.



11. Memorandum by David G. Perkins, Commander, TRADOC, n.d., "TRADOC Capability Manager (TCM) Mobile Charter," Fort Eustis, VA, available at the Army Training Support Center website, accessed 10 April 2017, <https://www.atsc.army.mil/tadlp/mobile/charter.asp>.
12. AR 350-1, *Army Training and Leader Development*, 132.
13. TCM for The Army Distributed Learning Program (TADLP), *The Army Distributed Learning Program Modernization Strategy: Strategic Plan 2012-2015* (Fort Eustis, VA: TCM TADLP, 7 December 2012), 18.
14. The Army Distributed Learning Program website, accessed 10 April 2017, <https://www.atsc.army.mil/tadlp/>.
15. TCM TADLP, *The Army Distributed Learning Program Modernization Strategy*, 40.
16. "TRADOC App[lication] Gateway (TAG)," TCM Mobile website, accessed 10 April 2017, <https://www.atsc.army.mil/tadlp/mobile/appstore/tag.asp>.
17. "Individual Weapon System," TAG, accessed 10 April 2017, <https://public.tag.army.mil/catalog/tag/app/100.ATSC/213D4FE7-BB31-48E3-8AC8-ACDABC6CAB87-1461240559558>.
18. Ibid.
19. Ibid.
20. TCM TADLP, *The Army Distributed Learning Program Modernization Strategy*, 32.
21. U.S. Army Maneuver Center of Excellence, "On the EDGE: Training Virtually to Attack the Network," *The DL Star* (Spring/Winter 2016): 8–9.
22. Ibid.
23. TCM TADLP, *The Army Distributed Learning Program Modernization Strategy*, 32.
24. AR 350-1, *Army Training and Leader Development*, 132.
25. Barbara Means et al., *Evaluation of Evidence-Based Practices in Online Learning: A Meta-Analysis and Review of Online Learning Studies* (Washington, DC: U.S. Department of Education, Office of Planning, Evaluation, and Policy Development, revised September 2010), xiv.
26. Ibid., xv.
27. Ibid.
28. Ibid., xvi.
29. Ibid., 40.
30. Ibid.
31. Cavanaugh and Jacquemin, "A Large Sample Comparison of Grade Based Student Learning," 6.
32. Tuan Nguyen, "The Effectiveness of Online Learning: Beyond No Significant Difference and Future Horizons," *MERLOT Journal of Online Learning and Teaching* 11, no. 2 (June 2015): 314.
33. Liston W. Bailey, "Digital Natives, Media, and Learning: Implications for The Future Of Army Training," *Army Press Online Journal* (Fort Leavenworth, KS: Army University Press, 27 May 2016): 2, accessed 10 April 2017, <http://www.armyupress.army.mil/Portals/7/Army-Press-Online-Journal/documents/16-22-Bailey-27May16.pdf>.
34. Ibid.
35. Ibid., 3.
36. Starr Roxanne Hiltz et al., "Measuring the Importance of Collaborative Learning for the Effectiveness of ALN: A Multi-Measure," in *Learning Effectiveness and Faculty Satisfaction: Proceedings of the 1999*



Sloan Summer Workshop on Asynchronous Learning Networks, ed. John Bourne (Nashville, TN: Center for Asynchronous Learning Networks, 2000), 1, 119–20.

37. Nguyen, “The Effectiveness of Online Learning,” 313.

38. K. P. Joo, Carmen Andrés, and Rick Shearer, “Promoting Distance Learners’ Cognitive Engagement and Learning Outcomes: Design-Based Research in the Costa Rican National University of Distance Education,” *International Review of Research in Open and Distance Learning* 15, no. 6 (2014): 201.

39. Nguyen, “The Effectiveness of Online Learning,” 312.

40. Means et al., *Evaluation of Evidence-Based Practices in Online Learning*, xiv.

41. AR 350-1, *Army Training and Leader Development*, 136.

42. Jack T. Judy, “The Reality and Myths Of Distance Learning,” *Army Press Online Journal* (Fort Leavenworth, KS: Army University Press, 27 May 2016): 2, accessed 10 April 2017, <http://www.armyupress.army.mil/Portals/7/Army-Press-Online-Journal/documents/16-23-Judy-27May16.pdf>.

43. Michael G. Shanley et al., *Making Improvements to the Army Distributed Learning Program* (Santa Monica, CA: RAND Corporation, 2012), 198–99.

44. Dawn M. Weston, “Study of Student Perceived Effectiveness of the Delivery of Distance Education Instruction at the United States Army Command and General Staff College” (dissertation, Kansas State University, 2010), 79.

45. TP 525-8-2, *The U.S. Army Learning Concept for 2015*, 7–8.

46. *Ibid.*, 27–28.

47. Jimmy C. Salazar, “On-line Versus Face-to-Face Education: Utilizing Technology to Increase Effectiveness” (monograph, School of Advanced Military Studies, 2012), 21.

48. Shanley et al., *Making Improvements to the Army Distributed Learning Program*, 198–99.

49. Salazar, “On-line Versus Face-to-Face Education,” 8.

50. Ronda Roberts Callister and Mary Sue Love, “A Comparison of Learning Outcomes in Skills-Based Courses: Online Versus Face-To-Face Formats,” *Decision Sciences Journal of Innovative Education* 14, no. 2 (2016): 251.

51. Army G-3/5/7, “Army Readiness Guidance,” Stand-To! website, 19 May 2016, accessed 10 April 2017, <https://www.army.mil/standto/2016-05-19>.

52. “Cadre & Faculty Development Course (CFDC),” University of Louisville, College of Education & Human Development website, accessed 6 April 2017, <https://louisville.edu/education/cfdc>.

53. AR 350-1, *Army Training and Leader Development*, 134.

54. Clinton L. Anderson, “Where Did We Go Wrong? An Analysis of the Way Instructional Systems Development Was Mustered out of the Army” (paper presentation, 70th Annual Meeting of the American Educational Research Association, San Francisco, 19 April 1986), 2.

55. *Ibid.*, 3.

56. *Ibid.*

