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Advanced distributed learning has not achieved its envisioned potential in the Department of Defense (DoD). It is over-regulated, unreliable, untrusted, and ultimately underused. With a common platform and common policy to compel its use, it may become all it was intended to be. Until that happens, the DoD will be unable to deliver a premier capability that capitalizes on the mobile learning potential of smartphones and other mobile devices to deliver online-offline anytime, anywhere access to high quality learning content.

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Advanced Distributed Learning (ADL) initiative; Knowledge on Demand (KOD); Distributed Lectures; The Great Courses, The Cove; App-based Learning Platforms

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*United States Marine Corps  
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Marine Corps University  
2076 South Street  
Marine Corps Combat Development Command  
Quantico, Virginia 22134-5068*

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**TITLE: Unrealized Potential for Advanced Distributed Learning in the DoD**

SUBMITTED IN PARTIAL FULFILLMENT  
OF THE REQUIREMENTS FOR THE DEGREE OF  
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**AUTHOR: Joseph B. McCurry**

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Mentor and Oral Defense Committee Member: Dr. Craig Hayden, Associate Professor of Strategic Studies, Marine Corps University Command and Staff

Approved: //signed//

Date: \_\_\_\_\_

Oral Defense Committee Member: LTC Jeremy T. Glauber, Special Operations Chair, Marine Corps University

Approved: //signed//

Date: \_\_\_\_\_

## Executive Summary

### **Title: Unrealized Potential for Advanced Distributed Learning in the DoD**

**Author:** Joseph B. McCurry, Department of the Air Force Civilian

**Thesis:** ADL has not achieved its envisioned potential. It is over-regulated, unreliable, untrusted, and ultimately underused. With a common platform and common policy to compel its use, it may become all it was intended to be.

**Discussion:** For two decades the DoD has invested in advanced distributed learning, but despite the billions of dollars spent, it has no premier capability for capitalizing on the mobile learning potential of smartphones and other mobile devices in providing online-offline anytime, anywhere access to high quality learning content. During this time, digital connectivity has revolutionized learning; advancements in mobile technology and the proliferation of mobile devices has instilled in people an expectation for stand-alone academic works to be accessible anytime, anywhere. Counter to this trend, PME institutions continue to provide exclusive access to digital repositories where their unclassified program related-content is stored. This content has unrealized potential in providing joint, intergovernmental, and multinational partners with common knowledge, especially if delivered in more usable and accessible audio/video formats.

**Conclusion:** Policy guidance, institutional evaluation, and internal government assessments suggest that potential solutions are available to address the requirements of distance learning for the federal workforce. They remain waiting to be implemented. The previously examined examples of KOD offer encouraging evidence that DoD can effectively and efficiently deliver knowledge in formats and across mediums appropriately aligned to trends in popular preference and technological development.

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“Education must be conceived as a continuing reconstruction of experience; that the process and the goal of education are one and the same thing” — John Dewey<sup>1</sup>

## **Thesis**

**ADL has not achieved its envisioned potential. It is over-regulated, unreliable, untrusted, and ultimately underused. With a common platform and common policy to compel its use, it may become all it was intended to be.**

## **Introduction**

The world wide web is free of barriers and controls, universally accessible, and provides opportunity to anyone who wants to make information like text, audio, and video accessible to a worldwide audience; its creation has exponentially increased the velocity and volume of the world’s information. As a result, opportunities to expand our collective knowledge have followed in proportion. Policies, such as defense policy, security policy, and information policy have struggled to keep pace.

Since 1996, the Department of Defense (DoD) has spent billions of dollars developing and implementing a disconnected, albeit distributed, learning environment. Subsequent decisions about learning and education show maintenance and protection of legacy capabilities to the detriment of grasping the full potential of mobile technology. US Government policies with the aim of achieving information superiority and interoperability, promulgated a strategic vision for using technology to modernize its education and training methodology. The DoD directed the use of interoperable resources to educate and train its workforce across the breadth of its distributed geography. It directed that its processes become more network-centric, content-centric, learner-centric within its existing standards for quality of instruction. However,

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<sup>1</sup> Dewey, John, ‘My pedagogic creed’, *The School Journal*, Volume LIV, Number 3 (January 16, 1897), <https://infed.org/mobi/john-dewey-my-pedagogical-creed/>.

examination of resource expenditures over the duration of the program indicate that cultural biases yielded an incomplete transformation. Consequently, far more treasure has been spent to obtain far less capability, without having achieved its decades-old policy goal: “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.”<sup>2</sup>

Both inside and outside of DoD, learning methods and perspectives are constantly changing. In keeping with principles derived from Bloom’s taxonomy of learning objectives, learners require ready and universal access to information to gain knowledge and comprehension.<sup>3</sup> Professional military education (PME) institutions’ historical practice of compartmenting information for the purposes of operational security reduces the degree to which it informs its force and those entities incidentally responsible for the advancement, maintenance, and protection of our national security interests such as interagency, intergovernmental, and multinational partners. DoD learning efforts have not, broadly speaking, facilitated the ready and universal access to information necessary for knowledge and comprehension.

One corrective course of action proposed here, based on the imperatives described in previous needs analysis for DoD training and education, would have the DoD explore a platform to disseminate “Knowledge on Demand (KOD)” to provide more readily available professional development opportunities for a greater share of the workforce. Such a strategy is warranted, given the remarkable proliferation of streaming media devices and services (e.g. Roku, Fire TV,

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<sup>2</sup> Office of the Under Secretary of Defense, Report to the 106<sup>th</sup> Congress: *Department of Defense Strategic Plan for Advanced Distributed Learning*, (Washington, DC: Office of the Under Secretary of Defense, 1999), 48,

[https://prhome.defense.gov/portals/52/documents/rfm/readiness/docs/adl\\_stratplan.pdf](https://prhome.defense.gov/portals/52/documents/rfm/readiness/docs/adl_stratplan.pdf)

<sup>3</sup> Lorin W. Anderson and David R. Krathwohl, *A Taxonomy for Learning, Teaching, and Assessing: A Revision of Bloom’s Taxonomy of Educational Objectives*. (New York, Addison Wesley Longman, 2001), 3-5. <https://www.uky.edu/~rsand1/china2018/texts/Anderson-Krathwohl%20-%20A%20taxonomy%20for%20learning%20teaching%20and%20assessing.pdf>

Apple TV, Netflix) has attracted and captivated the world. It may well be argued that recorded lectures are not able to replicate or supplant the in-resident PME experience. For instance, recorded lectures may not provide sufficient student-teacher interaction. Despite the above shortfalls, a recorded lecture offers a more enduring advantage, given that they can be undertaken at one's chosen time and pace. This approach could also provide a solution to persistent challenges facing the broad implementation of distributed learning priorities.

This paper attempts to establish a consistent method and structure for analysis and argument to assert that DoD policies, with respect to advanced distributed learning (ADL) and Advanced Distributed Learning Initiative (ADLI), must adapt to the volume and velocity of prevailing trends within the information environment. It examines the development and implementation of ADL policy. It calls the readers' attention to a broad range of stakeholders within DoD with specific consideration to those responsible for Professional Military Education (PME). It further considers hindrances to its employment with respect to force readiness and preparation. It examines technology trends to showcase the importance of accessible and usable resources. It recommends alternative methods for the delivery of education and further consideration for recorded lectures and app-based learning. Ultimately, this paper will sufficiently establish the need for greater effectiveness and efficiency uniformly across processes and associated educational institutions.

### **Examination of ADL Policy**

Scope of Policy Analysis. This paper provides analysis of policies proposed since 1996 that detail United States Government positions on distributed learning requirements. For the sake of coherent consideration, the order of examination follows a chronological precedence of establishment and enactment: (1) *1996 Quadrennial Defense Review*; (2) ADL Initiative

Establishment; (3) *1996 Joint Vision 2010*; (4) *1999 National Defense Authorization Act*; (5) *1999 Executive Order 11348*; (6) *1999 DoD Strategic Plan for ADL*; (7) *2000 DoD Implementation plan for ADL*; (8) *2003 GAO Report: Progress and Challenges for DoD's Advanced Distributed Learning Programs*; (9) *2004 GAO Report: DoD Needs to Develop Performance Goals and Metrics for Advanced Distributed Learning in Professional Military Education*; (10) *2013 GAO Report: Joint Military Education - Actions Needed to Implement DOD Recommendations for Enhancing Leadership Development*; (11) *2017 ADL Report: Needs, Challenges, and Primary Gaps Impacting the Implementation of Distributed Learning in the DoD*; (12) *2017 DoD instruction 1322.26: Distributed Learning*; (13) *2018 Reform Management Group Efficiencies Review: Education and Training* (14) *2019 DoD-Office of Personnel Management (OPM) Memorandum of Agreement*. Four of the fourteen previously mentioned policies fall within the Executive Branch and further within the Department of Defense. The Government Accountability Office (GAO) is part of the Legislative Branch.

The analysis in this paper relies extensively on the finding of the GAO report, which provides the most comprehensive data on the development of the ADL. To that end, the analysis relies extensively on their findings. Based on the documents listed above, the paper elaborates on a series of analytical objectives. First, the paper examines the consistency of purpose and priorities among each of the stakeholder organizations and the leadership for the ADL; second, it compares and contrasts the coherence of processes deemed essential to its successful implementation; and lastly, it considers the compatibility of DoD institutional structures with respect to the process and purpose.

## **The Development of the Advanced Distributed Learning Program**

In 1996, the Congressionally directed Quadrennial Defense Review (QDR) was the product of a year-long review of DoD strategy, programs, and resources. Foremost among its numerous findings, it found that an integrated service approach was necessary to address functional issues relating to the training of individuals and units.<sup>4</sup> Consequently, the Undersecretary of Defense for Personnel and Readiness USD (P&R), in collaboration with the Services and the Joint Staff set out to “harness the power of learning and information technologies to modernize [its] education and training” methodologies, an effort called the ADLI.<sup>5</sup>

The ADLI was part of a DoD-wide modernization strategy considering the character of learning and potential benefits (Table 1 & 2). The ADL initiative was established as the primary DoD proponent and enabler for achievement of the SECDEF’s *Training Technology Vision* and was given clearly defined goals and objectives (Table 3). Additionally, desired characteristics and requirements for both a DoD Advanced Distributed Learning System (ADLS) and Joint Advanced Distributed Learning Network (JADLN) were established (Table 4). Finally, and most importantly, issues and potential barriers to implementation of a distributed joint virtual learning environment (JVLE) architecture were identified (Table 5).

After ADL was initiated in 1996, a DoD-wide effort was now underway to provide an environment that would enable “Professional Military Education institutions and deployed personnel to query the data resident in the Professional Military Schools’ libraries, lectures,

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<sup>4</sup> John Y. Schrader, Leslie Lewis, and Roger Allen Brown, *Quadrennial Defense Review (QDR) Analysis: A Retrospective Look at Joint Staff Participation*. (Santa Monica, CA: RAND Corporation, 1999), 63-64 [https://www.rand.org/pubs/documented\\_briefings/DB236.html](https://www.rand.org/pubs/documented_briefings/DB236.html).

<sup>5</sup> Office of the Under Secretary of Defense, Report to the 106<sup>th</sup> Congress, 8, [https://prhome.defense.gov/portals/52/documents/rfm/readiness/docs/adl\\_stratplan.pdf](https://prhome.defense.gov/portals/52/documents/rfm/readiness/docs/adl_stratplan.pdf)

exercises, and research files in order to rapidly assemble data deemed necessary to conduct joint training” (Table 5).<sup>6</sup>

The ADL Initiative was given two primary responsibilities: (1) coordinate a broad range of distributed learning plans, programs, and initiatives underway within the department; and (2) develop common architecture and standards that would ensure interoperability and reuse of distributed learning tools and resources across the department. Furthermore, “rather than create a defense-unique solution, the “ADL Initiative ... [was to engage in] collaborative efforts -- involving other public-sector organizations, academia, and the private sector -- to develop a common open-architecture framework in support of Defense and National advanced distributed learning needs.”<sup>7</sup> This “federal framework” of high-quality distributed learning could be tailored to individual needs and delivered cost effectively, anytime and anywhere.”<sup>8</sup>

To facilitate the framework’s creation, USD(P&R) established three ADLI collaboration laboratories (Co-labs) to share research, subject-matter expertise, common tools, and course content through a virtual ADLI Co-Lab network.<sup>9</sup> The ADLI Initiative became the Department of Defense’s principal vehicle for developing a broad range of plans and programs that used advanced communications and learning technologies to modernize how the U.S. Armed Forces were educated and trained.<sup>10</sup> The ADLI initiative was to capitalize on “emerging network technologies to tie together distributed instructional resources, including intelligent tutors,

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<sup>6</sup> Office of the Under Secretary of Defense: *Department of Defense Implementation Plan for Advanced Distributed Learning*, (Washington, DC: Office of the Under Secretary of Defense, 2000), 22, <https://www.hsdl.org/?view&did=480013>

<sup>7</sup> Office of the Under Secretary of Defense, Report to the 106<sup>th</sup> Congress, 37, [https://prhome.defense.gov/portals/52/documents/rfm/readiness/docs/adl\\_stratplan.pdf](https://prhome.defense.gov/portals/52/documents/rfm/readiness/docs/adl_stratplan.pdf)

<sup>8</sup> Office of the Under Secretary of Defense: *DoD Implementation Plan for ADL*, ES1, <https://www.hsdl.org/?view&did=480013>

<sup>9</sup> *Ibid*, ES3.

<sup>10</sup> *Ibid*, 53.

subject-matter experts, and traditional instruction to support “learner-centric” education on a continuing basis.”<sup>11</sup> Lastly, ADLI was to “expedite production of learning materials and tools that ... [were] reusable, ... [could] run on a broad range of hardware platforms, and ... [could] be accessed and modified over a communications network.”<sup>12</sup> The ADL initiative was envisioned as not only a solution to a DoD problem but as a “common solution for common problems, not only to the military services and defense agencies, but to other public-sector organizations, academic institutions, and private industry.”<sup>13</sup> Initial indications were that the ADL initiative would facilitate the delivery of “high-quality education and training faster and at lower costs, ... increase dramatically the number of courses that use learning technologies, reduce classroom time by as much as 30 percent, increase student performance by as much as 20 percent, reduce travel and per diem costs, and reduce development costs by up to 50 percent.” These projected ADL initiative savings were calculated in consideration of the 170,000 student years of training the military services provided at their training centers each year.<sup>14</sup>

Following the ADL Initiative, Chairman of the Joint Chiefs of Staff (CJCS) published *Joint Vision 2010* in 1996 in order to prepare and guide the U.S. Armed Forces for future military operations emphasizing information superiority, innovation, and interoperability. It championed the use of new and improved technologies to globally connect and remotely educate and train the breadth of its geographically distributed force, without sacrificing quality.<sup>15</sup>

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<sup>11</sup> Ibid, 49.

<sup>12</sup> Office of the Under Secretary of Defense, Report to the 106<sup>th</sup> Congress, 48, [https://prhome.defense.gov/portals/52/documents/rfm/readiness/docs/adl\\_stratplan.pdf](https://prhome.defense.gov/portals/52/documents/rfm/readiness/docs/adl_stratplan.pdf)

<sup>13</sup> Ibid.

<sup>14</sup> Ibid, 49.

<sup>15</sup> Ibid, 50-51.

[https://prhome.defense.gov/portals/52/documents/rfm/readiness/docs/adl\\_stratplan.pdf](https://prhome.defense.gov/portals/52/documents/rfm/readiness/docs/adl_stratplan.pdf)

In October of 1998, the *National Defense Authorization Act for Fiscal Year 1999* directed the Secretary of Defense (SECDEF) to provide Congress with a strategic plan for guiding and expanding distance learning initiatives within the DoD.<sup>16</sup> In the intervening months, while the strategic plan was under draft, the SECDEF issued a *Training Technology Vision*; it directed the DoD 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.”<sup>17</sup> Concurrently, President Clinton issued Executive Order 11348: *Using Technology to Improve Training Opportunities for Federal Government Employees*, which amended *The Government Employees Act of 1958* (Public Law 85-507).<sup>18</sup> On April 30, 1999, the Office of the USD(P&R) delivered the *Department of Defense Strategic Plan for Advanced Distributed Learning* to Congress. The plan provided a framework for the “promulgation of advanced distributed learning master plans by each of the DoD Components” while ensuring that sufficient funds would be available for associated implementation.<sup>19</sup>

The DoD Strategic Plan for Advanced Distributed Learning - as shaped by then SECDEF Cohen and Chairman Shalikashvili - envisioned a 21<sup>st</sup> century where the “learning organization” and “advanced delivery systems” would revolutionize the learning environment, a future where technology would enable forces to “continuously learn, simulate, and rehearse, whether they are in school, at home station, at home, en route to, or in the theater of operations.”<sup>20</sup> As such, a shift to an anytime-anywhere learning and instruction paradigm was represented in the plan as a

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<sup>16</sup> *Strom Thurmond National Defense Authorization Act for Fiscal Year 1999*, 105<sup>th</sup> Cong., (October 17, 1986), Public Law 105-261, 76

<https://www.congress.gov/105/plaws/publ261/PLAW-105publ261.pdf>

<sup>17</sup> Office of the Under Secretary of Defense, Report to the 106<sup>th</sup>, 48,

[https://prhome.defense.gov/portals/52/documents/rfm/readiness/docs/adl\\_stratplan.pdf](https://prhome.defense.gov/portals/52/documents/rfm/readiness/docs/adl_stratplan.pdf)

<sup>18</sup> *Ibid*, 41.

<sup>19</sup> *Ibid*, 4.

<sup>20</sup> *Ibid*, 7.

“foremost priority” and “key” component to “maintaining military readiness” of the U.S. Armed Forces - a transition that would require the DoD to “re-engineer its ability to deliver learning.”<sup>21</sup> Learning technologies were to be exploited to deliver distributed, just-in-time, and on-demand education and training content that was accessible, tailorable, cost effective, and of the highest quality.<sup>22</sup>

The plan emphasized a “learner centric” focus and the re-engineering of “learning business processes from a factory model (involving mainly large education and training institutions)” to a more network-centric anytime-anywhere learning model.<sup>23</sup> The goal was to “provide for the distribution of as much learning as possible while maintaining military service directed standards for quantity and quality of instruction.”<sup>24</sup> The plan, among other things, also outlined a DoD Advanced Distributed Learning Strategy, requirements and characteristics for implementation of DoD Advanced Distributed Learning System (ADLS), and a strategy for DoD-wide modernization. An implementation strategy was forthcoming.

On May 19, 2000, the Office of the USD(P&R) published the *Department of Defense Implementation Plan for Advanced Distributed Learning*. This implementation plan for ADL described the DoD’s approach for carrying out the *Department of Defense Strategic Plan for Advanced Distributed Learning* and included information about ADL prototypes, program milestones, and associated resources. The ADL implementation plan, as drafted, benefitted from several accomplishments that preceded its origination: establishment of an Education and Training Steering Committee; establishment of ADL Co-Laboratories; and issuance of FY 2002-

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<sup>21</sup> Ibid, 8.

<sup>22</sup> Office of the Under Secretary of Defense, Report to the 106<sup>th</sup> Congress, 8, [https://prhome.defense.gov/portals/52/documents/rfm/readiness/docs/adl\\_stratplan.pdf](https://prhome.defense.gov/portals/52/documents/rfm/readiness/docs/adl_stratplan.pdf)

<sup>23</sup> Ibid, 9.

<sup>24</sup> Ibid, 9.

2007 Defense Planning guidance – which required DoD Components to “develop and maintain strategic plans that ... demonstrate how they take advantage of learning technologies,” and identify in their Program Objective Memorandum “all distributed learning programs and resources.”<sup>25</sup> The implementation plan itself was focused on “converting courses, as identified by the DoD components, in accordance with ADL’s sharable content object reference model (SCORM).” The ADL Co-laboratories were to have an essential role in the conversion of DoD component identified media content to ADL compliant media standards, pursuant to the creation of a learner-centric learning environment where knowledge would be available anytime, anywhere. As such, the “heart of the ADL program ... [would] be the content ... delivered to personnel whenever they need it, wherever they have access.”<sup>26</sup>

The high expectations set in the 2000 ADL Implementation plan prompted Congress to have the GAO review the program in 2003 and 2004; that said, the GAO has performed no subsequent reviews of the ADL program since 2004.<sup>27</sup> The 2003 GAO report, *Progress and Challenges for DoD’s Advanced Distributed Learning Programs* - among other things, found that OSD, the Joint Staff, and the services had achieved some ADL successes, although it was noted that the services’ programs generally focused on distribution infrastructure and service-specific content development. In the report, the key issues that challenged the ADL programs’ ability to achieve the benefits of enhanced learning in the DoD were grouped into four areas: cultural; technological; policy, and financial.

Culturally, the greatest inhibitors were: (1) cultural bias for the status quo; (2) inconsistent senior leader support; (3) bias for traditional learning; and (4) outdated metrics

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<sup>25</sup> Office of the Under Secretary of Defense: *DoD Implementation Plan for ADL*, ES4, <https://www.hsdl.org/?view&did=480013>

<sup>26</sup> Ibid, 25.

<sup>27</sup> gao.gov record search: most recent report on ADL program completed in 2004.

relying exclusively on physical attendance to justify funding. With respect to technology, three network-related setbacks stood apart: (1) bandwidth; (2) security, and (3) content accessibility. Policy related deficiencies were primarily attributed to its being in the early stages of development. Lastly, financial issues were deemed to be the result of insufficient funding relative to the expanding challenge. The \$431M allocated for FY99-02 was not enough. Moreover, the four-fold increase to \$1.6B allocated for FY03-07 was still \$600M below the \$2.2B projection. DoD's concurrence with the GAO report confirms: (1) a shared appreciation for scope and scale of ADL requirements across the federal framework of stakeholders; and (2) a shared appreciation for the resources necessary to meet those requirements.

The 2004 GAO report, *DoD Needs to Develop Performance Goals and Metrics for Advanced Distributed Learning in Professional Military Education* – examined the use of ADL techniques in senior- and intermediate-level officer PME. Key findings included: First, ADL techniques were primarily directed toward nonresident students. Second, OSD and the services had failed to establish evaluation criteria, processes, and clear goals for use of ADL. Third, DoD's preference for tangible metrics yielded a fixation on facilities, student to faculty ratios, and student body composition rather than accepting what the consensus of academic opinion held paramount-- knowledge, skills, and abilities. Lastly, DoD's partial concurrence and statement below highlights a deviation from performance effectiveness goals for advanced distributed learning and its related educational delivery methods.

The Department does support the use of specific performance effectiveness goals for professional military education. However, development of specific performance effectiveness goals for any specific delivery method, such as advanced distributed learning (ADL), is not appropriate. Educational outcomes are based on common

standards, as defined in the Officer Professional Military Education Policy, regardless of delivery method.<sup>28</sup>

The 2013 GAO Report, *Joint Military Education: Actions Needed to Implement DOD Recommendations for Enhancing Leadership Development* - indicates that ADLI was underutilized. It recommended that National Defense University (NDU) “should,” among other things, conduct a study to explore opportunities to further support joint education. It was recommended that the study “should” examine: (1) current service learning capabilities; (2) best learning practices within the civilian academic community; and (3) opportunities to leverage advanced education technologies to support lifelong learning - including potentially partnering with the Advanced Distributed Learning Initiative. An additional two recommendations were made outside the study: (1) NDU and the services “should” explore opportunities to make content from their education programs available; and (2) services “should” explore opportunities to incentivize and reward lifelong learning.<sup>29</sup> There is no evidence that NDU followed up on these specific recommendations.

In a 2017 report, the ADL Initiative released its assessment of the *Needs, Challenges, and Primary Gaps Impacting the Implementation of Distributed Learning in the DoD*, which was preceded by the following statement:

“DoD faces a growing challenge to meet the breadth, depth, and tempo of its expanding education and training needs. While budgets are shrinking, the complexity of missions is increasing and demands on personnel are growing. Technologies — such as distributed learning capabilities — can help address these challenges, but the training, education, and

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<sup>28</sup> Neil P. Curtin, 2004. *Military Education: DoD Needs to Develop Performance Goals and Metrics for Advanced Distributed Learning in Professional Military Education*. GAO-04-873. Washington, DC: Government Accountability Office, 46, <https://www.gao.gov/assets/250/243621.pdf>

<sup>29</sup> Brenda S. Farrell, 2013. *Joint Military Education: Actions Needed to Implement DoD Recommendations for Enhanced Leadership*. GAO-14-29 Washington, DC: Government Accountability Office, 37, <https://www.gao.gov/assets/660/658527.pdf>

operations communities must make informed decisions about which technologies to pursue and how to best implement them.”<sup>30</sup>

The Under Secretary for Personnel and Readiness subsequently issued DoD instruction 1322.26, *Distributed Learning (DL)*; this policy stated that “DoD personnel will have access to state-of-the-art, affordable, effective, and convenient education and training opportunities.”<sup>31</sup>

In 2018, the DoD reorganization signaled a change in the responsibility of training and education. The Chief Management Officer (CMO) of the DoD was given principal responsibility for “minimizing the duplication of efforts, maximizing efficiency and effectiveness, and establishing metrics for performance among and for all organizations and elements of the Department.”<sup>32</sup> Pursuant to these responsibilities, the CMO facilitated Reform Management Group (RMG) activities. The RMG is a cross-functional governance body that aims to implement business reforms across the DoD, consistent with the 2018 National Defense Strategy. In 2018, the Category Management for Training and Education team, as part of the Business Systems Reform initiative, one of nine RMG categories of initiatives, identified that the DoD had “multiple disparate platforms to deliver learning capabilities to the DoD workforce.” Over time, this has resulted in increased sustainment costs, redundant and non-integrated systems, no common course catalog and no unified record of learning from which to report or search and

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<sup>30</sup> Advanced Distributed Learning Initiative, *Distributed Learning Gap Report*, (Washington, DC: Office of the Under Secretary of Defense, April 2017), 2, <https://adlnet.gov/assets/uploads/ADL-Gap-Report-final.pdf>

<sup>31</sup> US Department of Defense, *Distributed Learning (DL)*, Instruction 1322.36, October 5, 2017, 3, [https://www.esd.whs.mil/Portals/54/Documents/DD/issuances/dodi/132226\\_dodi\\_2017.pdf?ver=2017-10-05-073235-400](https://www.esd.whs.mil/Portals/54/Documents/DD/issuances/dodi/132226_dodi_2017.pdf?ver=2017-10-05-073235-400)

<sup>32</sup> Office of the Chief Management Officer: *Initial Plan for Reforming the Business Operations of the Department of Defense for Efficiency and Effectiveness*, (Washington, DC: Office of Chief Management Officer, 2019), 6, <https://media.defense.gov/2019/Apr/26/2002122004/-1/-1/1/INITIAL-PLAN-FOR-DOD-REFORM-FY19.PDF>

discover across to assess readiness of the total force.<sup>33</sup> The subsequent recommendation made by the Category Management for Education and Training Team was for the DoD to consolidate the duplicative online education courses and learning management systems they had identified.

In May of 2019, an agreement was reached between the Department of Defense and the Office of Personnel Management (OPM), a partnership formed “to reduce the cost of training for defense employees and enhance the training experience.” User experience is important given that the “DoD spends nearly 340 million labor hours a year on learning activities.”<sup>34</sup> Those hours are consumed, in part, by employees taking online mandatory training courses. Pursuant to this agreement, OPM’s “USALearning” program, in service to DoD, in a fee-for-service capacity, will be the “centralized source for training, education, and domain specific expertise.”<sup>35</sup> This action was taken by the DoD to help it further align itself with mandated reforms outlined in the president’s management agenda - with respect to information technology modernization, data transparency and accountability, and the workforce of the 21st century.<sup>36</sup> This partnership is expected to result in the consolidation of DoD learning technology software platforms and related training and education activities. As many as “50,000 courses exist across 161 training distribution platforms within the DoD,” according to the DoD’s Chief Management Officer. This consolidation, which is projected to save the DoD \$122 million over the next five year, is to

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<sup>33</sup> U.S. Congress, Senate, Armed Services Committee, Armed Services Committee, *Advance Policy Questions for Ms. Lisa W. Hershman: Nomination for Appointment to be Chief Management Officer of the Department of Defense*, 116<sup>th</sup> Congress, 2019, 12, [https://www.armed-services.senate.gov/imo/media/doc/Hershman\\_APQ%20s\\_10-29-19.pdf](https://www.armed-services.senate.gov/imo/media/doc/Hershman_APQ%20s_10-29-19.pdf)

<sup>34</sup> Nicole Ogrysko, “New DoD-OPM Partnership Opens Up World of Reskilling Possibilities, Agency Says,” *Federal News Network*, May 3, 2019. <https://federalnewsnetwork.com/workforce/2019/05/new-dod-opm-partnership-opens-up-world-of-reskilling-possibilities-agencies-say/>

<sup>35</sup> Todd Lopez, “DoD, OPM Team Up for Improved Online Training,” *Defense.gov*, May 6, 2019. <https://www.defense.gov/Explore/News/Article/Article/1838268/dod-opm-team-up-for-improved-online-training/>

<sup>36</sup> *Ibid.*

coincide with the creation of a DoD-wide common course catalog and online access portal, and a DoD wide common learning record repository.<sup>37</sup> The CMO/RMG's discovery that numerous duplicative intra-service education courses and learning management systems were in use across the DoD indicates a misalignment in ADLI's purpose, process, and structure. It is ADLI's responsibility to eliminate inter-service and interagency duplication of effort with respect to implementation of new distributive learning solutions. The following section will give further consideration to this misalignment by focusing on policy directed focal points.

### **Examination of Professional Military Education (PME)**

The goal of PME is to develop joint warfighters who can “think critically and can creatively apply military power to inform national strategy, conduct globally integrated operations, and fight under conditions of disruptive change.”<sup>38</sup> This section provides analysis of PME, with specific attention to its purpose, process, and structure, but goes further to examines the delivery of education along the three ADLI policy directed focal points: (1) learner; (2) content and (3) network.

*Learners:* personnel involved in joint operations and their families are enduring constant stressors and pressure due to their numerous and prolonged deployments and busy training schedules. According to the 2017 *ADLI Needs, Challenges, and Primary Gaps Impacting the Implementation of Distributed Learning in the DoD*, the “DoD faces a growing challenge to meet

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<sup>37</sup> Todd Lopez, “DoD, OPM Team Up for Improved Online Training,” *Defense.gov*, May 6, 2019. <https://www.defense.gov/Explore/News/Article/Article/1838268/dod-opm-team-up-for-improved-online-training/>

<sup>38</sup> Office of the Chairman of the Joint Chiefs of Staff: *Developing Today's Joint Officers for Tomorrow's Ways of War: The Joint Chiefs of Staff Vision and Guidance for Professional Military Education & Talent Management (DRAFT)*, (Washington, DC: Office of the Chairman of the Joint Chiefs of Staff, 2019), 1, [https://www.jcs.mil/Portals/36/Documents/Doctrine/MECC2019/jcs\\_vision\\_pme\\_tm\\_draft.pdf?ver=2019-10-17-143200-470](https://www.jcs.mil/Portals/36/Documents/Doctrine/MECC2019/jcs_vision_pme_tm_draft.pdf?ver=2019-10-17-143200-470)

the breadth, depth, and tempo of its expanding education and training needs. While budgets are shrinking, the complexity of missions is increasing and demands on personnel are growing."<sup>39</sup> Military organizations carefully monitor and are prioritizing efforts to decrease the amount of time joint force personnel spend away from home, even when not deployed. PME institutions agree that the force has requirements exceeding the resources of brick and mortar educational institutions. The long-standing learning paradigm disproportionately values face-to-face consultations over remote arrangements. Despite the abundance of remote-learning opportunities, resident students, in most instances, are granted access to knowledge not available to non-residents. To this end, the SECDEF's *Training Technology Vision* directed the DoD 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."<sup>40</sup> Other PME stakeholders, such as the USD (P&R), generally agree that distributed learning applications are a viable option for connecting DoD personnel to learning content relating to joint matters.

*Content:* PME provides individuals with the "skills, knowledge, and understanding" that enable them to make sound decisions in progressively undertaking more demanding positions and roles within the national security environment.<sup>41</sup> PME addresses the military, political, historical, technological, economic, and sociocultural dimensions of national security, with

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<sup>39</sup> Advanced Distributed Learning Initiative, *Distributed Learning Gap Report*, (Washington, DC: Office of the Under Secretary of Defense, April 2017), 2, <https://adlnet.gov/assets/uploads/ADL-Gap-Report-final.pdf>

<sup>40</sup> Office of the Under Secretary of Defense, Report to the 106<sup>th</sup> Congress, 48, [https://prhome.defense.gov/portals/52/documents/rfm/readiness/docs/adl\\_stratplan.pdf](https://prhome.defense.gov/portals/52/documents/rfm/readiness/docs/adl_stratplan.pdf)

<sup>41</sup> George E. Breen Jr., 1993. *Military Education: Information on Service Academies and Schools*. GAO/NSIAD-93-264BR. Washington, DC: Government Accountability Office, 1, <https://www.govinfo.gov/content/pkg/GAOREPORTS-NSIAD-93-264BR/pdf/GAOREPORTS-NSIAD-93-264BR.pdf>

varying degrees of emphasis, providing a body of knowledge to enhance an individual's performance of respective service functions within a joint operating environment.

*Network:* Analysis of the PME network considers the relationship between individuals, organizations, and programs with respect to the resources available and decisions to assign priority based on the importance and the urgency of the learning requirements. Institutional leaders share a common concern that PME programs can only cover so many topics, while those topics thought less important, or that cannot be covered within time constraints of a program are either limited or altogether omitted. Episodic attendance to formal education programs may push an individual's cognitive limits and expose him to numerous topics, informing individual thought, but may not necessarily achieve desired learning outcomes. Therefore, alternative and complementary means for bridging from current to desired state of learning require further consideration.

The most common PME approaches to learners, content, and network listed above provide further evidence of a disconnect between the strategic intent of the ADL and the current implementation of education and access to information and professional development opportunities demonstrated across PME institutions.

### **Results of Analysis**

The results of the two examinations above confirms a general misalignment of purpose, process, and structure. It further suggests that enduring imperatives from within the Service - centric PME structure are a central reason for the complications associated with efforts to modify their processes to achieve their mutual objectives for providing timely, relevant, and effective education and training

Results of ADL Policy Examination:

The data suggests that purposes are, for the most part, complementary and consistent. All purposes across the federal framework, align to achieving adequate, if not universal, access to information. However, the responsibility of securing operational information with respect to mission and force, has manifested an enduring paradox of principles between providing distributed access to learning and securing proprietary information. In other words, the responsibility to share is hindered in equal proportion by the responsibility to protect. The 2003 GAO report, *Progress and Challenges for DoD's Advanced Distributed Learning Programs* speaks to this when it identifies bandwidth, security, and content accessibility as the three key issues that challenge the ADL program's ability to achieve the benefits of enhanced learning in the DoD. Although the data suggests that purposes are for the most part are complementary and consistent, the process often prohibits more effective sharing and dissemination. These problems are represented across each of the ADLI's three primary lines of effort: (1) research and development (R&D) for distributed learning modernization; (2) distributed learning policy and technical guidelines; and (3) implementation support and cross-coordination. From analysis of this policy, there is a dilemma created between two competing needs concerning distributed learning: (1) comply with organizational processes; and (2) effective and universal delivery of information using a balance of network-, content-, and learner-centric approaches for distributing as much learning as possible, while maintaining existing standards for quality of instruction.

#### Results of PME Examination:

While various PME institutions have created distance learning programs to facilitate more opportunities for learning, the benefits have not scaled up to the level of scope envisioned in earlier ADL policy objectives for DoD education. These fragmented efforts to greater and lesser extents achieve their objective – to create something valuable, but the delivery of these

informative final products to all those that might benefit remains an afterthought. When it comes to educating the joint force – according to Army War College – less emphasis must be placed on what must be taught and more emphasis on “how to teach and deliver content.”<sup>42</sup> Putting words on a page is a means for capturing and documenting knowledge, but a collection of printed words within a book on a shelf, or words digitally delivered to a screen do not stand apart from numerous competing counterparts of a like kind. However, converting those same static words into dynamic audio/video representations not only sets them apart but increases their usability. Most DoD networks are consumed with standard digital content (PDF, PPT, Word, Excel) among which audio and video files are few and far between. The PME enterprise could benefit from further consideration of audio- and video- as a standard means for delivering professional development to the joint force.

Examining PME through the lens of the ADLI suggests numerous deficiencies in their offerings, and opportunities for improvement. In order to enable continuous learning, the DoD must curate and provide ready and open access to education content generated and delivered within its formal programs. Education content from these programs should be as accessible to non-program participants as it is to program participants, a sentiment shared by the CJCS in the draft copy of his forthcoming vision and guidance for PME, in which it states, “we should strive to make our PME enterprise accessible to the force that is not in residence and support self-development and unit professional development programs, recognizing that these extend the core

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<sup>42</sup> Office of the Chairman of the Joint Chiefs of Staff, Information Paper: *USAWC Professional Military Education Way Ahead*, (Washington, DC: Office of the Chairman of the Joint Chiefs of Staff, 2018), 3,  
[https://www.jcs.mil/Portals/36/Documents/Doctrine/MECC2018/army\\_usawc\\_paper.pdf?ver=2018-10-22-095741-983](https://www.jcs.mil/Portals/36/Documents/Doctrine/MECC2018/army_usawc_paper.pdf?ver=2018-10-22-095741-983)

mission.”<sup>43</sup> The CJCS additionally asserts: “We must resource and develop a library of case studies, colloquia, games, and exercises for use across the PME enterprise and incentivize collaboration and synergy between schools.”<sup>44</sup> According to the CJCS: “Our PME institutions must be an agile and adaptable enterprise. Collaboration across our PME network enhances our programs, builds synergy and deeper understanding, and enables us to focus on key problems.”<sup>45</sup> The CJCS’s guidance suggests that the vision for distance learning detailed in the ADLI has gone unrealized.

As it exists today, ADLI is a government program under the Office of the Assistant Secretary of Defense for Readiness that operates in service to both the DoD and other federal agencies; its mission is to “encourage collaboration, facilitate interoperability, and promote best practices for using distributed learning to provide the highest-quality education, training, informal learning, and just-in-time support; tailored to individual needs and delivered cost-effectively, anytime and anywhere, to increase readiness, save resources, and facilitate interorganizational collaboration.”<sup>46</sup> The ADLI proclaims itself to be a “thought leader” for forward looking distributed learning topics; whereby, it works closely with stakeholders to help them implement effective, coordinated advanced distributed learning solutions based on emerging learning science and technologies. ADLI also asserts that it saves the DoD and Federal government time and money by matching stakeholder needs with solutions, and identifying and

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<sup>43</sup> Office of the Chairman of the Joint Chiefs of Staff: *Developing Today’s Joint Officers*, 8, [https://www.jcs.mil/Portals/36/Documents/Doctrine/MECC2019/jcs\\_vision\\_pme\\_tm\\_draft.pdf?ver=2019-10-17-143200-470](https://www.jcs.mil/Portals/36/Documents/Doctrine/MECC2019/jcs_vision_pme_tm_draft.pdf?ver=2019-10-17-143200-470)

<sup>44</sup> Ibid, 6.

<sup>45</sup> Ibid, 8.

[https://www.jcs.mil/Portals/36/Documents/Doctrine/MECC2019/jcs\\_vision\\_pme\\_tm\\_draft.pdf?ver=2019-10-17-143200-470](https://www.jcs.mil/Portals/36/Documents/Doctrine/MECC2019/jcs_vision_pme_tm_draft.pdf?ver=2019-10-17-143200-470)

<sup>46</sup> Advanced Distributed Learning Initiative, “About the ADL Initiative,” <https://adlnet.gov/about/>

eliminating inter-Service and interagency duplications of effort. Among other things, ADLI is involved in advanced technology development and assessment in technical areas such as e-learning, mobile learning, learner modeling and analytics, software interoperability, distributed learning systems, and associated learning theory; it seeks to identify advanced distributed learning prototypes that might enable more effective, efficient, and affordable learner-centric lifelong learning.<sup>47</sup> To this end, ADLI established the Defense Advanced Distributed Learning Committee (DADLAC) in 2007. The committee meets biannually to discuss current distributed learning gaps and generate ideas for future research and investment relating to enhancement of current or development of new ADL capabilities. Its core members include military and civilian distributed learning leaders (O-6 or equivalent level) from Army Training and Doctrine Command (TRADOC), Naval Education and Training Command (NETC), Air Force Education and Training Command (AETC), Marine Corps Training and Education Command (TECOM), Joint Staff J7/Joint Knowledge Online (JKO), National Guard Bureau (NGB), and the DoD Chief Learning Officer (CLO).<sup>48</sup>

### **Knowledge on Demand (KOD)**

The course of action proposed here addresses key components of the ADL initiative, and needs previously identified for distance education in the DoD. The following exploration of KOD provides the necessary context to understand the scale of deviation between opportunities made available by advancements in technology and the constraints imposed on learning to comply with organizational policy and institutional norms. Relevant KOD solutions and

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<sup>47</sup> Ibid.

<sup>48</sup> Advanced Distributed Learning Initiative, “Defense ADL Advisory Committee (DADLAC), <https://adlnet.gov/partners/dadlac/>

platforms discussed here include: Distributed Lectures, Existing DoD APP-Based Capabilities, and Commercial App-based capabilities.

#### Distributed Lectures:

It may be argued that recorded digital video lectures are only capable of delivering low level learning; even if that were true, a lecturer has a limited audience; he/she can only be in one place at a time; whereas, the recording of a lecture can be anywhere, anytime - creating time and space for a greater number of student-teacher engagements in the classroom, and injecting the potential for learning where it would not have otherwise existed. Preparing the script for a digital video takes an instructor as much time to develop as an in-person lecture, although the corresponding recording of that lecture is more time intensive than its clocked delivery from the podium. That said, the recording of a digital video lecture is a one-time investment of institutional resources that establishes a readily available, reusable means of servicing future learning demands that can be repurposed without the expenditure of additional teaching resources. Institutions can achieve resource efficiencies by transitioning routine knowledge dissemination tasks - like lectures - to the digital video realm to achieve a greater degree of focus on active learning in the classroom – (e.g. case studies, practical applications). The replacement of in-resident lectures with pre-recorded digital videos containing the same content allows students to interact with the digital media when, where, and at the pace they desire; they can pause the videos to reflect and take notes, and replay difficult portions to reinforce understanding. Initial investments into technologies and support personnel may hinder the near-term efficiencies gained through creation of digital videos. There is however a net benefit in the long-term given the marginally low cost of digital video as compared to the resources and valuable time lost by faculty and students alike in sustaining standard lecture practices. The goal

is to leverage digital videos to create more in-class time for interactive learning activities rather than simply transmitting content. These videos could be produced to deliver theoretical knowledge and contextual frameworks that are reinforced in the classroom through employment of case studies and practical exercises.

#### Existing DoD Apps:

Numerous disparate and like implementations of virtual learning environments exist throughout the DoD and operate independently from one another to spread awareness and provide knowledge to exclusive target audiences - using closed system architectures of varying capabilities. Most DoD entities act exclusively in their own best interests to develop, procure, and sustain independent online virtual learning solutions. These independent pursuits have resulted in the expenditure of far more money to obtain far less capability. The creation of redundant capability has perpetuated an exclusionary learning environment where valuable resources are subjugated and compartmented rather than openly shared. In contrast, the proposed KOD service seeks to broaden access and increase opportunities for learning by allowing its users to employ an app on their personal mobile device or Smart TV to gain anytime, anywhere access to a singular curated repository of digital videos relevant to the performance of their job.

The DoD already has efforts underway that could support the proposed platform for learning; however, they are not without potential constraints for a KOD initiative. The Department of Defense operates one of the world's largest and most complex set of networks. In fiscal year 2019, it spent more than 46.4 billion to maintain roughly ten thousand operational systems, thousands of data centers, tens of thousands of servers, millions of computers and IT

devices, and hundreds of thousands of commercial mobile devices.<sup>49</sup> The *DoD Digital Modernization Strategy*, published in 2019, established four digital modernization goals: innovate for competitive advantage; optimize for efficiency and improved capability, evolve cybersecurity for an agile and resilient defense posture; and cultivate talent for a ready digital workforce. Among other things, this strategy seeks to achieve a future where more common foundational technology is delivered across the DoD components. Obtaining such commonality will require the DoD to field new IT capabilities and services to capitalize on the unprecedented opportunities offered by mobile devices and mobile apps, a potential that is easily negated by restrictive network security policies – most notably, the requirement for application of common access card (CAC) authentication rules. In pursuing the modernization of its digital environments, the DoD must make concessions to ensure that its current and future virtual learning environments are able to achieve the degree of accessibility and usability necessary to facilitate the delivery of high-quality professional development resources - in support of its longstanding goal for providing anytime, anywhere learning.

National Defense University and the Services have not kept pace with trends in education technology, most notably, online/offline app-based delivery of educational audio/video content. The PME community has plenty of websites, but only has one mobile application - Joint Knowledge Online (JKO) Mobile that provides online staff training – and no Smart TV applications, effectively tethering its workforce to a computer to receive education outside the schoolhouse. This is an unexpected standing for the PME enterprise given its sustained interests

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<sup>49</sup> Office of the Secretary of Defense: *DoD Digital Modernization Strategy: DoD Information Resource Management Strategic Plan FY 19-23*, (Washington, DC: Office of the Secretary of Defense, 2019), 7, <https://media.defense.gov/2019/Jul/12/2002156622/-1/-1/1/DOD-DIGITAL-MODERNIZATION-STRATEGY-2019.PDF>

in life-long learning, learning technologies, and concurrent interests for making education more accessible and tailorable.

DoD decision makers need not start anew in seeking better solutions for delivering future digital learning environments that have a seamlessly integrated mobile app capability. There are numerous sites from which to derive best practices and functional attributes for delivering the proposed KOD capability to the DoD workforce – The Great Courses, The Cove, Udemy, SkillShare, Lynda/LinkedIn Learning, MasterClass, Udacity, and Coursera – all have demonstrated success as a content delivery and learning platform in the both the public and private sector education marketplace. *The Great Courses*, with its best of the best approach, and *The Cove*, with its connectivism approach in PME, will be discussed hereafter.

#### Commercial Apps:

*The Great Courses: The Teaching Company's* operations have remained much the same over the last 30-years: recruiters actively scour college campuses across the U.S. for “SuperStar” teachers; consensus of approval is always gained from customers in support of both the course topic and recruited guest lecturer. Under *The Great Courses* brand, college-level courses containing best of the best recorded lectures are marketed directly to customers on CD, DVD, and digital formats. Five members of the joint, interagency, intergovernmental, and multinational (JIIM) community are part of *The Great Courses* faculty, having contracted to deliver at least one original course of their own design; four out of the five have delivered subsequent courses for the *Teaching Company* as well (Table 6).

With the increasing popularity of its courses and its revenue growing in excess of \$150 million a year, the *Teaching Company* introduced a new video service called *The Great Course Plus* in September of 2015. This service, capable of supporting standard internet enabled desktop

devices through a web browser, was purposely developed to expand the accessibility and usability of *The Great Courses* catalog of courses for smartphone and mobile device users. *The Great Courses Plus* app was developed and made available for the iPhone, iPad, Apple TV, Android, Kindle Fire, Chromecast, Roku, and connected TVs. This app creates an enhanced learning experience, allowing its user to mix and match lectures from different courses into a personalized playlist that can be downloaded and accessed offline.

*The Cove*: The Australian Army's online professional development network, *The Cove*, is based on the theory of connectedness; it is an online medium that promotes the sharing of expertise and provides for continuous learning in the profession of arms. The medium, which includes a variety of videos, podcasts, blogs, and resources/tools - strives to deliver resources that appeal to the varied learning styles of its end-users. The Cove leverages its most valued resource, its people, to provide an adaptive venue that harnesses and shares the knowledge, experience, and wisdom residing within the Australian Defense community for the benefit of current and future generations. As important as the collection and distribution of knowledge is to its operation, the usability and accessibility of the medium is equally, if not, more important. The Cove's structure is simplistic in design and function; it has a powerful search feature and organizes its contents into five channels to allow for intuitive user navigation: Trenchline, Break-in, Command Post, War Room, and Unit PME. In order to make the medium more broadly available to a larger number of people, the Cove developed the "Cove App," which enables people to use their phones and other internet-enabled devices to gain anytime, anywhere access to PME. As far as *The Cove* is concerned, its hosted content is of little consequence or relevance in of itself, for its only goal is to achieve the purpose for which it was conceived: to intellectually

and professionally develop soldiers. According to *The Cove*, 65% of its users access the medium through their mobile phones.<sup>50</sup>

The Cove demonstrates that institutional components of the joint education community should exist as an integrated network where the functions of its people and systems are interconnected in such a way that “alterations within the network have a ripple effect on the whole.”<sup>51</sup> Interconnectedness and interdependence within the community is necessary to achieve optimized education environments for learning. The more integrated and interconnected the joint education community becomes the greater its ability to provide the joint force with actionable knowledge. However, to facilitate true learning, knowledge must be “connected to the right people in the right context.”<sup>52</sup> The entities that comprise the joint military education community must acknowledge the correlation between information flow and organizational effectiveness. When knowledge is abundant, the subsequent degree of rapid evaluation and knowledge sharing that occurs drives corresponding increases or decreases in the enterprise’s capacity for teaching and learning. “Creating, preserving, and utilizing information flow should be a key organizational activity” for the education community. In catalyzing and preserving information flow, the large efforts of the few (the teachers) must be complemented by the small efforts of the many (subject matter experts). Sustaining information flow is more important than content contained therein because content is of little consequence if those that need it are unable to tap into it when required. “Learning is no longer an internal, individualistic activity” given its

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<sup>50</sup> The Cove, “Launch of New Cove App,” <https://cove.army.gov.au/article/launch-the-new-cove-app> .

<sup>51</sup> George Siemens, “Connectivism: A Learning Theory for the Digital Age,” *International Journal of Instructional Technology and Distance Learning*, Chapter 19. <https://lidtfoundations.pressbooks.com/chapter/connectivism-a-learning-theory-for-the-digital-age/>

<sup>52</sup> Siemens, “Connectivism: A Learning Theory for the Digital Age, Chapter 19.

reliance on technology for access to that which is to be learned.<sup>53</sup> As such, future learners must be as skilled in the art of finding information as they are at assimilating it.

### **Conclusion**

For two decades the DoD has invested in advanced distributed learning, but despite the billions of dollars spent, it has no premier capability for capitalizing on the mobile learning potential of smartphones and other mobile devices in providing online-offline anytime, anywhere access to high quality learning content. During this time, digital connectivity has revolutionized learning; advancements in mobile technology and the proliferation of mobile devices has instilled in people an expectation for stand-alone academic works to be accessible anytime, anywhere. Counter to this trend, PME institutions continue to provide exclusive access to digital repositories where their unclassified program related-content is stored. This content has unrealized potential in providing joint, intergovernmental, and multinational partners with common knowledge, especially if delivered in more usable and accessible audio/video formats.

Policy and organizational constraints within the joint community and services alike prevent adequate adjustment to emergent technology requirements and have hindered and will continue to hinder patterns of behavior for distributed learning within the DoD. Consequently, the policy frameworks established in support of the DoD's Advanced Distributed Learning initiative failed to realize its envisioned potential for modernizing how the US Armed Forces educate and train.

Policy guidance, institutional evaluation, and internal government assessments suggest that potential solutions are available to address the requirements of distance learning for the federal workforce. They remain waiting to be implemented. The previously examined examples

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<sup>53</sup> Siemens, "Connectivism: A Learning Theory for the Digital Age, Chapter 19.

of KOD offer encouraging evidence that DoD can effectively and efficiently deliver knowledge in formats and across mediums appropriately aligned to trends in popular preference and technological development.

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## APPENDIX: Tables

<b>Table 1: DoD Modernization Strategy Objectives</b> <sup>54</sup>	
Objective 1	Exploit existing network-based technologies
Objective 2	Create platform neutral and reusable content
Objective 3	Promote widespread collaboration to satisfy common needs
Objective 4	Enhance performance with next-generation learning technologies

<b>Table 2: Common Lexicon for Advanced Distributed Learning</b> <sup>55</sup>	
Learning	Acquisition of knowledge, skills, and attitudes through the integration of education, training, and performance aiding in a comprehensive, mutually supportive system
Distributed Learning	Structured learning that takes place without the physical presence of the instructor. Distributed learning is enhanced with technology. It may draw upon resources which are physically distant from the location where learning is taking place and may include the use of one or more of the following media -- correspondence course materials, audio/videotapes, CD ROMs, audio/videoteletraining, interactive television, and video conferencing -- to provide right-time, right-place learning
Advanced Distributed Learning	Leverages the full power of computer, information, and communication technologies through the use of common standards in order to provide learning that can be tailored to individual needs and delivered anytime-anywhere. Advanced distributed learning also includes establishing an interoperable “computer managed instruction” environment that supports the needs of developers, learners, instructors, administrators, managers, and family. Advanced distributed learning encompasses all the methodologies mentioned above, and in addition, includes ongoing and expected improvements in learning methodologies

<b>Table 3: Advanced Distributed Learning Initiative Goals and Objectives</b> <sup>56</sup>	
	<ul style="list-style-type: none"> <li>● Establish technology driven concepts and methodologies for individual learning, encompassing the “areas of education, training, and performance aiding</li> <li>● Establish education and training programs, born of DoD-wide cooperation, collaboration, shared research and development, prototypes, and test beds; and avoidance of unnecessary redundancies, to meet the needs of the future force, both military and civilian</li> <li>● Establish electronic classrooms and learning networks to provide increased access to learning opportunities</li> <li>● Leverage power of learning technologies to broaden reach of educators and trainers</li> <li>● Enhance and expand the individual and collective capabilities of learning organizations to facilitate learning that leads to changes in thinking and behavior</li> <li>● Effective delivery of learning using new network-based, modular content and modern telecommunication tools</li> <li>● Shift from right-time, right place to anytime-anywhere learning paradigm</li> <li>● Re-engineer DoD’s ability to exploit resources and learning technologies to deliver distributed, just-in-time and on-demand learning</li> <li>● Maintain quality in transitioning from learning solely in the central classroom to learning in the unit</li> <li>● Create and sustain a responsive, high-quality “learner-centric” system that harnesses the power of the Internet and other virtual and private networks to deliver high-quality learning</li> <li>● Re-engineering the learning paradigm from a “classroom-centric” model to an increasingly “learner-centric” model, and re-engineering the learning business process from a “factory model” (involving mainly large education and training institutions) to a more network-centric “information-age model” which incorporates anytime-anywhere learning</li> </ul>

<sup>54</sup> Office of the Under Secretary of Defense, Report to the 106<sup>th</sup> Congress, 37, [https://prhome.defense.gov/portals/52/documents/rfm/readiness/docs/adl\\_stratplan.pdf](https://prhome.defense.gov/portals/52/documents/rfm/readiness/docs/adl_stratplan.pdf)

<sup>55</sup> Ibid, 5.

<sup>56</sup> Ibid, 4-9.

- Distribute as much learning as possible while maintaining the Service-directed standards for quality of instruction

**Table 4: ADL System and Joint ADL Network** <sup>57</sup>

Characteristics
<ul style="list-style-type: none"> <li>• Accessibility from any location, remote or local</li> <li>• Interoperability between all advanced distributed learning instructional platforms, media, and tools</li> <li>• Durability to withstand base technology changes without significant recoding or redesign</li> <li>• Reusability between applications, platforms, and tools</li> <li>• Cost effectiveness to provide significant increases in learning and readiness per net increment in time or cost</li> </ul>
Requirements
<ul style="list-style-type: none"> <li>• Robust data and video network infrastructure between the decentralized databases and repositories for digital courseware and geographically-dispersed or mobile learners</li> <li>• Greater emphasis placed on the conversion of traditional classroom courseware to a form that is consistent with emerging standards of interoperability and reuse</li> <li>• Acceptability of completion of collective and individual training and/or educational requirements via advanced distributed learning methodologies and to authorize awarding credit and/or compensation, when appropriate</li> </ul>

**Table 5: Joint Virtual Learning Environment (JVLE) Issues and Barriers** <sup>58:59</sup>

<ul style="list-style-type: none"> <li>• <b>Education and Training Institutions.</b> The department’s education and training institutions may need incentives to aid and accelerate the move from traditional instruction toward advanced distributed learning where appropriate. Given the need to continue high-quality education and training during the transition, these institutions will have to choose between allocating funds to ADL and preserving their existing capabilities</li> <li>• <b>Collaboration Incentives.</b> Incentives may also be needed to stimulate collaborative development and sharing of advanced distributed learning resources across the components and across the public and private sectors</li> <li>• <b>Faculties.</b> The faculties of the various schools are the Subject-Matter Experts (SMEs) upon whom Department of Defense must depend for content development, validation, updating and delivery. Department of Defense should consider the benefits and costs associated with permitting faculty members to obtain intellectual property rights associated with ADL courseware that they develop</li> <li>• <b>Policies.</b> Since ADL is a new learning paradigm that brings instruction to the individual wherever and whenever needed, the department should consider adopting policies and programs that permit military and civilian personnel to learn at the desktop PC, at installation computer labs, or electronic classrooms without risk of learning interruption</li> <li>• <b>Access.</b> Successful implementation of ADL across the department will require all Department of Defense members to have unfettered access to ADL tools and courseware whenever, and wherever they are needed. Transitioning to this new learning paradigm may require the department to consider new policies that help defray the cost of tools and basic Internet access for all Department of Defense members, regardless of where stationed or how serving</li> <li>• <b>Information Security.</b> Information security and privacy should allow, rather than impede, advanced distributed learning. While information security and the protection of the department’s information networks are of high importance, careful attention will be needed to ensure that security policies do not restrict access to advanced distributed learning materials</li> <li>• <b>Accessibility.</b> The accessibility of high-quality learning content is a fundamental requirement of the Secretary’s ADL Vision and Strategy and is key to achieving the Information Superiority (and knowledge superiority) goals the JV2010. This includes a capability to “reach back” to education and training resources within Department of Defense, the federal agencies, academia, the private sector, or in some cases, to foreign allies. Accessibility also includes the capability to deliver high quality learning content to Department of Defense personnel anytime and anywhere</li> </ul>
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<sup>57</sup> Ibid, 11. – Pg. 11

<sup>58</sup> Office of the Under Secretary of Defense: *DoD Implementation Plan for ADL*, 51, <https://www.hsdl.org/?view&did=480013>

<sup>59</sup> Ibid, 82.

- **Availability.** The availability of information is critical to an effective training program. Models and other systems must be available to the training audience, with limited unscheduled downtime occurring, to ensure an efficient training experience. Thus, the Joint ADL Network must be capable of providing the required bandwidth and distribution, making data accessible from any required location, including sites outside any existing infrastructure. Since distributed learning must be accessible anytime and anywhere, sufficient “on-call” bandwidth will be available on this network.
- **Usability.** The Joint ADL Network must provide a high degree of usability. It must use web-based technology to provide a common look and feel and enable ease of use.
- **Adaptability.** The Joint ADL Network must offer adaptability as well. It must use an open-standards-based architecture to promote interoperability among all required applications and databases
- **Affordability.** The Joint ADL Network must offer affordability to ensure future program success. It must improve the efficiencies of all categories of training, education, and related missions through reusability of applications, infrastructure services, and content, and must provide cost-effectiveness per net increment of time.
- **Network Performance.** Network performance must be considered, including the accuracy, efficiency, and complete throughput of information. The transfer of information must be seamless and efficient, providing for as real a training experience as possible.

**Table 6. Great Course by Joint, Interagency, and Intergovernmental Partners**

**General Wesley K. Clark (Ret. 4-star General) – Former NATO Supreme Allied Commander Europe**

- *American Military History: From Colonials to Counterinsurgents*, course guidebook (299 pgs.) – published 2018 – twenty-four 30-minute video lectures (12-hours)

**Andrew R. Wilson, Ph.D. – Professor of Strategy and Policy at the United States Naval War College**

- *The Art of War*, no course guidebook – published in 2012 – six 30-minute audio lectures (3-hours)
- *Masters of War: History’s Greatest Strategic Thinkers* – course guidebook (201 pgs.) - published in 2012, twenty-four 30-minute lectures (12 hours)
- *Understanding Imperial China: Dynasties, Life, and Culture* – course guidebook (284 pgs.) - published in 2017 – twenty-four 30-minute video lectures (12-hours)

**Stephen Ressler, Ph.D. (Professor Emeritus U.S. Military Academy at West Point & Army Brigadier General – Ret.)**

- *Understanding Greek and Roman Technology: From Catapult to the Pantheon* – course guidebook (232 pgs.) - published in 2014 – twenty-four 30-minute video lectures (12-hours)
- *Understanding the World’s Greatest Structures: Science and Innovation from Antiquity to Modernity*, course guidebook (210 pgs.) - published in 2011 – twenty-four 30-minute video lectures (12-hours)
- *Everyday Engineering: Understanding the Marvels of Daily Life* - course guidebook (403 pgs.) – published in 2015, thirty-six 30-minute video lectures (18-hours)
- *Do-It-Yourself Engineering* – course guidebook (353 pgs.) – published in 2017 - twenty-four 30-minute video lectures (12-hours)

**Mark A. Stoler, Ph.D. - visiting professor at the U.S. Naval War College and U.S. Military Academy at West Point**

- *The Skeptic’s Guide to American History* – 188 pages course guidebook (188 pgs.) – published 2012, twenty-four 30-minute lectures (12-hours).
- *America and the World: A Diplomatic History* – 160-page course guidebook (160 pgs.) – published in 2008, twenty-four lectures averaging 30-minutes each (12-hours)

**Paul Rosenzweig, JD - former Deputy Assistant Secretary of Policy in the U.S. Department of Homeland Security**

- *Thinking about Cybersecurity: From Cyber Crime to Cyber Warfare* – course guidebook (157 pgs.) – published in

2013 – Eighteen 30-minute video lectures (9-hours)

- *The Surveillance State: Big Data, Freedom, and You* – course guidebook (188 pgs.) - published in 2016, twenty-four 30-minute video lectures (12-hours).
- *Hacking American Elections: Why We're Vulnerable and How We Can Stop It* – no course guidebook – published in 2018 – One thirty-four-minute video lecture (34 minutes)
- *Investigating American Presidents* – course guidebook (130 pgs.) – published in 2018 – Thirteen 30-minute video lectures (6.5 hours)