

MOBILE LEARNING – TASK 1 LITERATURE REVIEW



Example of Mobile Learning Devices
(Image Source: PR Log)

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EXECUTIVE SUMMARY

Learning models, and more specifically the effectiveness of various learning methods and techniques, have been studied for decades. Exploring the different learning styles, expected training outcomes, and forms of instruction are important components of evaluating these models. In many situations, especially those involving military personnel or first responders, providing instruction or training that can be accessed “on the go” is essential. These end users often need information that can be updated regularly and accessed anytime. For example, immediate access to training content, real-time intelligence and operational data on a portable device can provide first responders a significant advantage when accomplishing their mission. This type of learning is referred to as mobile learning and occurs when a user is not confined to a predetermined location and uses a portable device (i.e., a smartphone, MP3 player, tablet, e-reader, etc.) to receive instruction. It is important to note that mobile learning is not simply “shrinking content” to fit on a mobile device, but rather, is a custom learning application developed with a specific performance goal (and subsequent support) in mind.

With the growth in the availability and functionality of mobile devices, mobile learning has become a popular instruction method; last year the US market for mobile learning products and services reached \$958.7M. By 2015, this market is expected to grow 13.7 percent.¹ However, while this type of instruction method is being used in a variety of commercial businesses, there are many differing aspects (in terms of content and delivery) between military and civilian educational requirements. For example, mobile learning specific to military or government end users often requires data and/or device encryption. Further, mobile learning creates a non-traditional learning environment, where students can ask questions and provide feedback, which can be challenging if military or government personnel are deployed.

While many articles have been published on the benefits of mobile learning (i.e., access to information anywhere, as well as the ability to customize learning content and platform) finding evidence to support claims of its effectiveness specific to military and government entities remains a challenge. One way to better understand the benefits of mobile learning applications specific to the military and government markets is to review evaluations or critiques conducted by experts in the field. These evaluations, from qualified experts and scholars within a relevant field of study, are referred to as peer reviews and provide a way to maintain standards in order to provide credibility to the particular topic. Peer review papers differ from news editorials or non-peer reviewed journals in that they provide evidence of a paper’s legitimacy for publication. Additionally, secondary sources, such as literature reviews, combine these relevant sources, thereby bringing together a body of work that focuses on the most critical points found by the

¹ United States. Adkins, Sam S. *The US Market for Mobile Learning Products and Services: 2010-2015 Forecast and Analysis*. May 2011. Web. 11 December 2011.

experts in a field of a particular topic. In this way, a literature review assists the reader in forming a basis of study, and provides a foundation for any future research that may be needed.

Table 1 catalogs peer reviewed articles specific to the military and government markets. These articles describe the benefits, return on investment (ROI), and trends related to mobile learning. Additionally, best practices and/or innovative solutions related to mobile learning are discussed. For example, in *The US Army Learning Concept for 2015*, no specific technologies are focused on; instead, the opportunities and learning outcomes related to mobile learning and other virtual environments are discussed. A list of non-peer reviewed articles can be found in Table 2 and Section 4.2.

TABLE 1: PEER REVIEWED ARTICLES

Title	Author	Date Published
<u>Wireless/Hand-Held Devices And Education</u>	Hezel Associates, LLC	2008
<u>Using Learning Objects for Rapid Deployment to Mobile Learning Devices for the US Coast Guard</u>	Northrup, Pamela T. University of West Florida; Harrison, Jr., William T. University of West Florida & US Navy	2009
<u>Education and Training Technology in the Military</u>	Fletcher, J.D. Institute for Defense Analyses	2009
<u>Evaluation of Evidence-Based Practices in Online Learning</u>	Multiple Authors US Department of Education	2009
<u>Mobile Learning Approaches for U.S. Army Training</u>	Tucker, Jennifer S. US Army Research Institute	2010
<u>Strategies for Designing 21st Century Military Education</u>	Prevou, Dr. Mike Strategic Knowledge Solutions; McGurn, Linda Dynamics Research Corporation	2010
<u>The US Army Learning Concept for 2015</u>	Multiple Authors US Army	2011
<u>LATIST: A Performance Support Tool for Integrating Technologies into Defense Acquisition University Learning Assets</u>	Multiple Authors Marine Corps Systems Command	2011
<u>An Extended User Evaluation of the Apple Inc. iPod Touch™ to Aid the U.S. Marine Corps</u>	Multiple Authors USMC Naval Surface Warfare Center, Dahlgren Division	2011

TABLE 2: NON-PEER REVIEWED ARTICLES

Title	Author	Date Published
<u>Knowledge Anywhere, Anytime Based on the Wireless Devices</u>	Ion Roceanu et al.	2009
<u>Mobile Learning – an Alternative to Classroom Studies</u>	DANTES	2009
<u>Mobile Learning Proves Valuable for Military</u>	mobileben	2009
<u>Emerging Tools for Distributed Learning</u>	Regina Kerrigan	2010
<u>Are We Wired for Mobile Learning?</u>	Voxy	2011
<u>Mobile Language Learning</u>	Unsoon Won	2011
<u>SG and US Military Cooperate for M-Learning</u>	Xinghui Guo	2011
<u>US Uses Mobile Learning in Flight Against Human Traffickers</u>	New Security Learning	2011
<u>Weaving Learning Technologies into Defence Training</u>	Keith Downes	2011

Despite the articles listed above, there is no definitive opinion on whether mobile devices are the most effective tools for unique military learning objectives, mostly because substantial research has not been conducted on the success in the usability of the mobile learning interface and programs. With improved software and hardware in the future, mobile learning could facilitate intelligence sharing between soldiers in the field and revolutionize military tactics in the battlefield. Moving forward, obtaining more expert feedback from peer reviewed publications will assist in justifying the potential benefits and opportunities that mobile learning can bring to help enhance the military learning environment.

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1.0 CAPABILITY SOUGHT

1.1 Description of the Problem or Technology Shortfall

Training is essential for US military personnel and first responders. For each of these end users, today's remote operational environments require relevant and current information that can be accessed at anytime. One way to accomplish this exchange of critical information easily and quickly is through the use of mobile learning instruction.

Although there is a wealth of information written on mobile learning, much of the information is not directly related to military needs. There is a need for a catalog listing military and/or first responder specific mobile learning publications. This resource would provide easy access to information necessary to describe the benefits, return on investment (ROI), best practices, lessons learned, and innovative uses of mobile learning specific to the user's needs. Further, it can provide a better understanding of how a mobile learning capability can be used to benefit end users in the field, as well as overall agency effectiveness.

1.2 Capability Sought

The Combating Terrorism Technical Support Office (CTTSO) is interested in a literature review of mobile learning publications containing information that will assist military and government organizations in justifying/explaining the use of mobile learning. The publications listed in this report were evaluated against the following parameters:

- Publication date of 2008-present;
- Encompass a strong tie to the US military and/or first responder market; and are
- Peer reviewed and non-peer reviewed².

2.0 RESEARCH DESIGN & METHODOLOGY

2.1 Objective

The objective of the research was to identify all solutions with the capability to meet the requirements noted in Section 1.2. Specifically, the information contained in this report was compiled to meet the following objectives related to mobile learning peer reviewed articles:

² A list of non-peer reviewed articles can be found in Section 4.2.

- Identify the availability of peer reviewed articles related to mobile learning; and
- Provide written descriptions or abstracts of these articles.

TABLE 3: REPORT OBJECTIVES

Report Organization		
Objective Number	Objective Description	Section Reference
1	Identification of peer reviewed articles related to mobile learning	Executive Summary; Section 3.0 Results
2	Provide written descriptions or abstracts of these articles	Section 4.0 Product Information

2.2 Research Sources

To address the objectives listed in Table 3 above, CTC Tampa Bay, Inc. (CTCTB) conducted research using open source internet search queries and technical searches of the Defense Technical Information Center (DTIC). Additionally, researchers utilized www.academia.edu and www.ambientinsight.com to search for peer reviewed papers. Once identified, articles were verified for applicability to the capability sought.

3.0 RESULTS

3.1 Available Technology

Mobile learning methods generally consist of utilizing hand-held computing devices in order to provide informational content to a user. It allows users with wireless and mobile phone networks access to training materials in situations where it is needed, oftentimes in the field “on the spot.” Because of its flexibility, mobile learning often decreases limitations of location based learning. In many cases, mobile learning tools are not considered a complete learning entity, but rather a supplement to enrich the infrastructure of the learning environment by supporting and facilitating the reach of traditional teaching and learning.

Unlike e-learning, which occurs when there is any physical separation between instructor and student, the focus of mobile learning is not only learning with mobile devices, including smartphones, MP3 players, tablets, e-readers, etc.), but also learning across varied situations (i.e., varied environments or platforms). Further, mobile learning not only focuses on the freedom of movement by the device, but of the mobility of the learner as well, thereby reflecting the needs of an increasingly mobile and technology-based society. This freedom makes mobile learning instantaneously usable, therefore allowing users to personalize, input and generate informal

content. It also gives users more control over their learning experience, allowing for learners to access, compile, create and share information in a variety of locations and formats at any time needed.

A significant advantage with mobile learning is that the platforms with which it works are generally familiar and user-friendly – most people are accustomed to operating a smartphone or MP3 player, therefore, in most cases, a learner can quickly and easily become familiar with mobile learning interfaces.

The articles listed in this report discuss benefits, ROI, best practices, lessons learned, and innovative uses of mobile learning specific to military and first responder needs. While each article has a different focus and/or end user in mind, a common trend found is that utilizing mobile learning in some capacity in the future will become imperative; traditional teaching styles benefit from technology-based training by giving it a more varied, dynamic and interesting style of learning. Section 4.1 provides a detailed abstract of each peer-reviewed article included in this report. A list of non-peer reviewed articles is included in Section 4.2 for informational purposes.

4.0 LITERATURE REVIEW RESULTS

4.1 Peer Reviewed Articles

Wireless/Hand-Held Devices and Education

Primary Mobile Learning Focus: Learning Outcomes

Author(s): Hezel Associates, LLC

Date Published: 2008

[Link](#)

Wireless/Hand-Held Devices and Education was published March 2008. This peer reviewed article focuses on the effort to better understand learning outcomes related to the use of hand-held devices in the delivery of higher education courses. Additionally, the article details how the Defense Activity for Non-Traditional Education Support (DANTES) employed Hezel Associates, (a research and consulting firm for the education sector), to study outcomes related to these courses. Hezel Associates sought to compare course completion rates for three different delivery modes - courses offered primarily on hand-held devices (personal data assistants (PDAs) and iPods), courses offered primarily online, and courses offered via traditional face-to-face classroom instruction. The author addresses the possibility of whether the use of one delivery mode versus others led to differing results, and compares and contrasts the physical attributes of iPods and PDAs in the delivery of courses and identifies constraints and

considerations in their design. The article further discusses how five institutions that use or have used hand-held devices in the delivery of higher education coursework were recruited for this study; only one of the five was able to provide course completion data sufficient to compare hand-held courses to other modalities. This report also includes the findings of research of wider scholarly contexts for understanding and interpreting these results.

Using Learning Objects for Rapid Deployment to Mobile Learning Devices for the US Coast Guard

Primary Mobile Learning Focus: Content Development Tool

Author(s): Northrup, Pamela T. of the University of West Florida; Harrison, Jr., William T. of the University of West Florida; US Navy

Date Published: 2009

[Link](#)

Using Learning Objects for Rapid Deployment to Mobile Learning Devices for the US Coast Guard was published in 2009. This peer reviewed article focuses on the eLearning Objects Navigator (eLONTM) as an approach for creating, classifying, and retrieving reusable learning and information objects. In particular, the author analyzes the theoretical framework for the development of eLONTM and the choices made concerning the deployment of PDAs to military personnel. The article also includes initial results from the beta test and a series of lessons learned.

Education and Training Technology in the Military

Primary Mobile Learning Focus: Computer-Assisted Instruction and Simulation

Author(s): Fletcher, J.D., Institute for Defense Analyses

Date Published: 2009

[Link](#)

Education and Training Technology in the Military was published in January 2009. This peer reviewed article focuses on the Department of Defense's (DoD's) contributions in computer-assisted instruction (CAI), which include drill and practice, computers capable of generating instructional interactions on demand and in real time, and the development of various education and training technologies. Specifically, the author reviews the initial involvement of the DoD simulators (pilot trainers) and how the instruction evolved to include computer simulators serving a wide range of purposes, including education and the training of crews, teams, and units. Further, the article contains past and continuing contributions of the DoD in areas such as

training effectiveness, cost effectiveness, instructional efficiency, and collaborative collective activities.

Evaluation of Evidence-Based Practices in Online Learning

Primary Mobile Learning Focus: Learning Outcomes

Author(s): Multiple Authors, US Department of Education

Date Published: 2009

[Link](#)

Evaluation of Evidence-Based Practices in Online Learning was published May 2009. This peer reviewed article focuses on a systematic search of the research literature from 1996 through July 2008 which identified more than a thousand empirical studies of online learning and how traditional learning experiences compared with active or interactive learning experiences, (including those on digital devices), give students more control in what or how they learn. Analysts screened these studies to find those that: (a) contrasted an online to a face-to-face condition, (b) measured student learning outcomes, (c) used a rigorous research design, and (d) provided adequate information to calculate an effect size³. In particular, the author analyzes the results of this screening; 51 independent effects were identified that could be subjected to meta-analysis. The meta-analysis found that, on average, students in online learning conditions performed better than those receiving face-to-face instruction. Further, the article also discusses the difference between student outcomes for each type of learning environment (measured as the difference between treatment and control means, divided by the pooled standard deviation) was larger in those studies contrasting conditions that blended elements from both types of instruction with conditions taught entirely face-to-face.

Mobile Learning Approaches for US Army Training

Primary Mobile Learning Focus: Mobile Learning (Specific to Army)

Author(s): Tucker, Jennifer S., US Army Research Institute

Date Published: 2010

[Link](#)

Mobile Learning Applications for US Army Training was published in August 2010. This peer reviewed article focuses on the use of smartphones for mobile learning applications. The author explains that while previous mobile learning efforts have involved a PDA, alternative approaches

³ Meta-analysis combines results of multiple experiments to obtain composite estimates of the size of the effect. The result of these experiments is expressed as an *effect size*, which is the difference between the mean for the treatment group and the mean for the control group, which is then divided by the pooled standard deviation.

to mobile learning should be explored. Specifically, the author identifies smartphone technologies that could be used by the US Army for mobile learning. The article also discusses potential challenges in using mobile learning technology for military agencies like the US Army; definitions of mobile learning; advantages and disadvantages of mobile learning; successful demonstrations of mobile technology in instructional environments; potential approaches for US Army training; and challenges in using mobile learning technologies in US Army training.

Strategies for Designing 21st Century Military Education

Primary Mobile Learning Focus: Learning Outcomes and User Profiles

Author(s): Prevou, Dr. Mike, Strategic Knowledge Solutions; McGurn, Linda, Dynamics Research Corporation

Date Published: 2010

[Link](#)

Strategies for Designing 21st Century Military Education was published in 2010. This peer reviewed article focuses on the profiles of emerging learners and recommends how professional military education (PME) can support them. Specifically, the author reviews over 20 education reports and student interviews (at each PME level), as well as outlines the characteristics of 21st century students and how PME must change from performance-based to outcome-based learning. The article also discusses a case study of how an advanced blended learning solution, including mobile learning, could be applied to a military classroom.

The US Army Learning Concept for 2015

Primary Mobile Learning Focus: Mobile Learning (Specific to Army)

Author(s): US Army

Date Published: 2011

[Link](#)

The US Army Learning Concept for 2015 was published in January 2011. This peer reviewed article focuses on how soldiers' learning experience continues throughout their career and it is the responsibility of the institutional schoolhouse, tactical units and the soldiers themselves. Specifically, the author discusses concepts to improve the current learning mode, (which is typically instructor-led, timed to predetermined course lengths, and not synchronized to meet individual learner needs) which will remain with the soldier until he or she retires. The article also explores the access to applications, blending of physical and virtual collaborative environments, and learning outcomes by examining opportunities presented by dynamic virtual

environments, on-line gaming and mobile learning instead of focusing on a particular technology.

Learning Asset Technology Integration Support Tool (LATIST⁴): A Performance Support Tool for Integrating Technologies into Defense Acquisition University Learning Assets

Primary Mobile Learning Focus: Future Mobile Learning Users

Author(s): Multiple Authors, Marine Corps Systems Command

Date Published: 2011

[Link](#)

LATIST: A Performance Support Tool for Integrating Technologies into Defense Acquisition University Learning Assets was published in 2011 July. This peer reviewed article focuses on the younger generation (“gamers”) entering the Defense Acquisition Workforce that are becoming students at Defense Acquisition University (DAU). In particular, the author reviews how the younger generation finds the classroom settings have little visual stimulation, passive lectures and ineffective or non-engaging use of integrated technology. Further, the author discusses how the DAU wants to integrate available technologies and innovative approaches to develop games and simulations to improve performance outcomes as well as learning assets. The article also examines the challenges associated in keeping up with new technologies, their capabilities, and impacts as possible tools for training and education.

An Extended User Evaluation of the Apple Inc. iPod Touch™ to Aid the US Marine Corps

Primary Mobile Learning Focus: Platform Review

Author(s): Multiple Authors, USMC Naval Surface Warfare Center, Dahlgren Division

Date Published: 2011

[Link](#)

An Extended User Evaluation of the Apple Inc. iPod Touch™ to Aid the US Marine Corps was published September 2011. In particular, the author analyzes an Extended User Evaluation (EUE) completed to determine if a hand-held device aided Marines in the performance of their primary occupational duties while deployed in an operational environment. The author examines the evaluation which spanned a seven-month deployment, and consisted of monthly surveys

⁴ LATIST was developed as a result of funding provided by the US Army Research Development and Engineering Command (RDECOM) to support research on Advanced Learning Technologies (ALT) for the DAU.

while gathering usability insights under operational conditions that would translate into generalized design criteria for future mobile devices. Marines were provided with an iPod Touch™, or a Marine Pods (MPod⁵), with preconfigured sets of information and tools to be used during in-theater operations. The majority of Marines found the MPod to be a useful resource as their primary source of information during field. Additionally, this article discusses the two user categories identified: informational and general. Informational users employed the MPods primarily for access to technical publications to support maintenance operations. General users primarily employed the MPods for entertainment, note taking, and physical training modules.

4.2 Non-Peer Reviewed Articles

Knowledge Anywhere, Anytime Based on the Wireless Devices

Primary Mobile Learning Focus: Mobile Learning Components Research

Author(s): Ion Roceanu et al.

Date Published: 2009

[Link](#)

Knowledge Anywhere, Anytime Based on the Wireless Devices was published in 2009. This non-peer reviewed article focuses on wireless communication technologies and MOBNET-Learning (connection to knowledge databases, digital content and courses using any type of mobile terminals, regardless of the operating system utilized or the type of communication network used to access the Internet). Specifically, the authors discuss the platforms mobile learning can be programmed with (JSR-172, JAX-RPC, Java, etc.) and identify the potential to extend the educational and instructional system into high-tech components from the information and communication field into the mobile environment. The article also reviews specific issues associated with mobile learning and technology including research regarding the technological development and the diversity of public education; studies and research on a model of the educational system; and research and experimentation for creating software instruments to develop digital content easily accessible and available to users who are on the move and utilize different types of mobile devices.

⁵ The MPod is a product of the Marine Corps Warfighting Laboratory that provides soldiers with a handheld device that runs applications for language translation, cultural learning and general purpose training.

Mobile Learning - an Alternative to Classroom Studies

Primary Mobile Learning Focus: Mobile Learning Effectiveness

Author(s): DANTES

Date Published: 2009

[Link](#)

Mobile Learning - an Alternative to Classroom Studies was published in 2009. This non-peer reviewed article focuses on the effectiveness of mobile devices for course delivery. Specifically, the author analyzes the completion rates of students using mobile devices and compares them to the completion rate of face-to-face and online courses. Further, the article suggests an additional study will be performed to study completion rates across various modalities and disciplines.

Mobile Learning Proves Valuable for Military

Primary Mobile Learning Focus: VCommunicator & Army

Author(s): mobileben

Date Published: 2009

[Link](#)

Mobile Learning Proves Valuable for Military was published in March 2009. This non-peer reviewed blog focuses on the use of the VCommunicator in the field. Specifically, the author reviews how the VCommunicator program (US Army) helps soldiers train to memory the common phrases used by Afghans. The blog also notes that the “train to memory approach” would be best for dangerous situations in Afghanistan and an iPod would provide a comfortable learning environment for the soldier.

Emerging Tools for Distributed Learning

Primary Mobile Learning Focus: Tool Overview

Author(s): Regina Kerrigan, Military Training Technology Magazine Correspondent

Date Published: 2010

[Link](#)

Emerging Tools for Distributed Learning was published in 2010. This non-peer reviewed article focuses on advancing technologies and new resources for distributed learning. In particular, the author discusses how web-based learning capabilities are not necessarily good for the mobile environment and how the developer must know how the mobile device will be used, as well as its limitations and how the learning capability integrates with the mobile device. Further, the

article provides examples of future learning capabilities that include virtual worlds and realistic audio that place the student in simulated situations.

Are We Wired for Mobile Learning?

Primary Mobile Learning Focus: Digital Natives & Education

Author(s): Voxy

Date Published: 2011

[Link](#)

Are We Wired for Mobile Learning was published in February 2011. This non-peer reviewed infographic focuses on how the digital native (i.e., a young person born during or after the general introduction of digital technology) uses digital technology in their daily lives and how the current education delivery methods (white board, textbooks, etc.) do not meet the needs of this group. Specifically, the author notes that digital media is an integral part of the digital native and suggests the education system integrate media-based learning to keep the attention of these students. The article also discusses examples where digital media was used in the classroom and improved the learning experience for the students.

Mobile Language Learning

Primary Mobile Learning Focus: Language Learning

Author(s): Unsoon Won, Defense Language Institute Foreign Language Center

Date Published: 2011

[Link](#)

Mobile Language Learning was published in July 2011. This non-peer reviewed PowerPoint presentation focuses on the use of mobile devices for language learning. Specifically, the author reviews the tools used for language learning and discusses the advantages and disadvantages of using the mobile devices and applications (apps) to learn a language. The presentation also provides a list of guidelines to follow in order to make mobile language learning more effective.

SG and US Military Cooperate for M-Learning

Primary Mobile Learning Focus: Medical Training & Mobile Devices

Author(s): Xinghui Guo, Aisa Pacific FutureGov

Date Published: 2011

[Link](#)

SG and US Military Cooperate for M-Learning was published in April 2011. This non-peer reviewed article focuses on the availability of medical related training on mobile devices. Specifically, the author describes the distribution of medical training content using cellular infrastructures of more than 20 nations to assist responders in performing medical duties or the ability to assess the medical situation in natural disaster areas. The article also discusses the testing of the mobile learning environment in multiple languages and different skill sets will be required.

US Uses Mobile Learning in Fight Against Human Traffickers

Primary Mobile Learning Focus: Mobile Trafficking in Persons (TIP) Program

Author(s): New Security Learning

Date Published: 2011

[Link](#)

US Uses Mobile Learning in Fight Against Human Traffickers was published in 2011. This non-peer reviewed article focuses on mobile learning materials used to detect and deter human trafficking. The author discusses how a new mobile app, TIP, provides efficient learning and field training. The article also lists some advantages and disadvantages of the mobile app, including how the device and browser-specific interface presents challenges for providing a consistent experience, and flash animations are not supported, so alternative slideshows may have to be created using static images. Further, device and browser detection is sometimes necessary in order to address device specific interface features, video delivery, and browser-specific functionality; however, full screen mode is consistently supported on most devices.

Weaving Learning Technologies into Defence Training

Primary Mobile Learning Focus: Course Development

Author(s): Keith Downes, Director and Defence Lead at LINE

Date Published: 2011

[Link](#)

Weaving Learning Technologies into Defence Training was published in March 2011. This non-peer reviewed article focuses on some of the mobile resources LINE has developed in the last several years. Specifically, the author discusses how LINE provided e-learning and technology-centric learning solutions to help defense training be more cost efficient, as well as developed apps like HealthCheck for college seniors and Fire Control Orders and Cultural Awareness for soldiers. The article also mentions that technology is driving clients from big training systems to smaller, more mobile and affordable technologies.

APPENDIX 1 ACRONYM AND ABBREVIATION LISTING

ALT	Advanced Learning Technologies
CAI	Computer-Assisted Instruction
CTCTB	CTC Tampa Bay Inc.
CTTSO	Combating Terrorism Technical Support Office
DANTES	Defense Activity for Non-Traditional Education Support
DAU	Defense Acquisition University
DoD	Department of Defense
DTIC	Defense Technical Information Center
eLONTM	eLearning Objects Navigator
EUE	Extended User Evaluation
LATIST	Learning Asset Technology Integration Support Tool
MPods	Marine Pods
PDA	Personal Data Assistant
PME	Professional Military Education
RDECOM	Research Development and Engineering Command
ROI	Return on Investment
TIP	Trafficking in Persons
TSWG	Technical Support Working Group

APPENDIX 2 RESEARCH EXCLUSIONS

The solutions in Table 4 were excluded from this report, as they did not meet the capabilities specified in Section 1.2; however, they are listed for informational purposes.

TABLE 4: RESEARCH EXCLUSIONS

Title	Link	Reason
The Case for Advanced Distributed Learning	 Case for ADL.pdf Link	ADL Specific
A Service-oriented Approach Towards Context-aware Mobile Learning Management Systems	 A Service-oriented Approach towards Cc Link	Not military specific
Assessing Mobile Learning Effectiveness and Acceptance	 Accepting Mobile Learning Effectiveness Link	Not military specific
Dimensions of Mobile Augmented Reality for Learning: A First Inventory	 Dimensions of Mobile Augmented Reality fc Link	Not military specific
How E-Learning Can Increase ROI for Training	Link	Not military specific
m-Learning: Mobile Learning Is Finally Going Mainstream – And It Is Bigger Than You Might Think	Link	Not military specific
Mobile Learning for Just in Time Applications	Link	Not military specific
Mobile Learning: Taking Training on the Road	Link	Not military specific
Mobile Learning: The Beginning of the End of Classroom Learning	 Mobile Learning The Beginning of the End Link	Not military specific
Mobile Learning: Transforming the Delivery of Education and Training	Link	Not military specific

Title	Link	Reason
The Current Perspectives, Theories And Practices of Mobile Learning	 The Current Perspectives, Theories Link	Not military specific
Viability, Advantages and Design Methodologies of M-Learning Delivery	Link	Not military specific
Why Affective Learning in a Situated Place Matters for the Millennial Generation	 Why Affective Learning in Situated F Link	Not military specific
A Review of Distance-Learning Studies in the U. S. Military	Link	Not recent (published in 1995)
How E-Learning Can Increase ROI for Training	Link	Not recent (published in 2005)
Augmented Reality as an Emerging Military Training Technology	Link	Not relevant to mLearning
Empowering Our Warfighter: Using iPhones for Situational Awareness	Link	Not specific to learning and/or training
E-Learning Diurnal Time Patterns in the Navy	Link	Published in Israel
Can We Really Learn from Mobile Handheld Devices?	Link	Published in the United Kingdom

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