

Technical Report 1395

Development and Validation of the U.S. Army Learning Organization Maturity Model

Michele A. Calton

Army Research Institute

Tyler E. Freeman

Candace Blair Cronin

Chelsey Thompson

Karyn Warner

Ray Morath

Mike Smith

ICF International



March 2021

**United States Army Research Institute
for the Behavioral and Social Sciences**

Approved for public release; distribution is unlimited.

**U.S. Army Research Institute
for the Behavioral and Social Sciences**

**Department of the U.S. Army
Deputy Chief of Staff, G1**

Authorized and approved:

**MICHELLE L. ZBYLUT, Ph.D.
Director**

Research accomplished under contract
for the Department of the U.S. Army by

ICF International

Technical review by

Lee Bedford, U.S. Army Research Institute
James Nye, U.S. Army Research Institute

DISPOSITION

This Technical Report has been submitted
to the Defense Information Technical Center.

REPORT DOCUMENTATION PAGE

1. REPORT DATE (<i>DD-MM-YYYY</i>) March 2021		2. REPORT TYPE Final		3. DATES COVERED (<i>From – To</i>) September 2017 – May 2019	
4. TITLE AND SUBTITLE Development and Validation of the U.S. Army Learning Organization Maturity Model				5a. CONTRACT NUMBER W911NF-11-D-0001	
				5b. PROGRAM ELEMENT NUMBER 622785	
6. AUTHOR(S) Calton, M.A., Freeman, T.E., Cronin, C.B., Thompson, C., Warner, K., Morath, R., & Smith, M.				5c. PROJECT NUMBER A790	
				5d. TASK NUMBER 17-006	
				5e. WORK UNIT NUMBER 425	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) ICF International 9300 Lee Highway Fairfax, VA 22031				8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES) U.S. Army Research Institute for the Behavioral and Social Sciences 6000 6 th Street (Bldg. 1464 / Mail Stop: 5610) Fort Belvoir, Virginia 22060-5610				10. SPONSOR/MONITOR'S ACRONYM(S) ARI	
				11. SPONSORING/MONITORING Technical Report 1395	
12. DISTRIBUTION AVAILABILITY STATEMENT Distribution Statement A: Approved for public release; distribution is unlimited.					
13. SUPPLEMENTARY NOTES ARI Research POC: Dr. Michele A. Calton, Fort Leavenworth Research Unit					
14. ABSTRACT This research was the first step towards developing a U.S. Army Learning Organization Capability that will collectively consist of a tailored definition of learning organization specific to the Army context, an Army Learning Organization Maturity Model (ALOMM), an assessment (ALOA) for leaders to measure their organizations' learning maturity, and resources to develop maturity as a learning organization based on assessment results. The objective of this first phase of research was to develop an ALOMM that describes what U.S. Army Learning Organizations (LOs) look like, and what they do. The research began with a comprehensive review of academic literature as well as relevant military doctrine and publications that informed the development of the initial ALOMM. The ALOMM was subsequently validated and refined through an iterative process comprising interviews with senior U.S. Army leaders, a workshop with stakeholders and subject matter experts, and a content validation survey. Research findings suggest the ALOMM provides a valid characterization of what a learning organization looks like inside the U.S. Army.					
15. SUBJECT TERMS Learning, Organizations, Knowledge Management, Learning Organizations, Lessons Learned					
SECURITY CLASSIFICATION OF: Unclassified			19. LIMITATION OF ABSTRACT Unlimited Unclassified	20. NUMBER OF PAGES 43	21. RESPONSIBLE PERSON Angela Karrasch, Chief Fort Leavenworth Research Unit 913.684.9758
16. REPORT Unclassified	17. ABSTRACT Unclassified	18. THIS PAGE Unclassified			

Standard Form 298 (Rev. 8-98)

Technical Report 1395

Development and Validation of the U.S. Army Learning Organization Maturity Model

Michele A. Calton
U.S. Army Research Institute

Tyler E. Freeman
Candace Blair Cronin
Chelsey Thompson
Karyn Warner
Ray Morath
Mike Smith
ICF International

Fort Leavenworth Research Unit
Angela Karrasch, Chief

March 2021

Approved for public release; distribution is unlimited.

ACKNOWLEDGEMENTS

We would like to acknowledge the contributions to this research by the numerous consummate professionals with whom we have been fortunate to work. We would specifically like to acknowledge Mr. George Stemler at the U.S. Army Intelligence Center of Excellence, Dr. Sena Garven with the U.S. Army University, and Mr. Joseph Koskey and Mr. Mike Kitchens with the U.S. Army Mission Command Center of Excellence for their continued interest, support, and engagement in this research topic over the years. Finally, we would like to acknowledge everyone who helped make this research possible through their assistance in tasks including data collection and coordination. Specifically, we would like to acknowledge Ms. Pamela Butler for her invaluable coordination assistance and Dr. Nathaniel Ratcliff for his professional assistance. Thank you all for making this research a success.

DEVELOPMENT AND VALIDATION OF THE U.S. ARMY LEARNING ORGANIZATION MATURITY MODEL

EXECUTIVE SUMMARY

Research Requirement:

The U.S. Army has identified for many years as a learning organization (LO), however there was no endorsed definition of U.S. Army LOs, no validated model to describe what they should look like, and no method for leaders to assess their organizations' learning maturity. Thus, this research describes the first step towards developing a U.S. Army Learning Organization Capability that will consist of a scientifically constructed definition and the U.S. Army Learning Organizations Maturity Model (ALOMM). This first step requires better understanding U.S. Army LOs from senior leader and subject matter expert perspectives, in order to define, develop, and validate an ALOMM.

Approach:

This research began with a comprehensive review of the academic literature as well as relevant U.S. Army doctrine and publications that informed the initial development of the definition of U.S. Army LOs and the ALOMM. The definition and the ALOMM were then subsequently validated and refined through an iterative process comprising interviews with senior Army leaders, a workshop with Army stakeholders and subject matter experts, and finally a content validation survey.

Findings:

The key research findings and conclusions include the identification of the five major dimensions that comprise a U.S. Army LO (cultivation of learning support, orientation toward a shared future, exploration of new perspectives, synchronization of capabilities, and management of organizational knowledge) and their associated attributes. Additionally, the ALOMM provides a valid characterization of U.S. Army LOs, and the ALOMM is valued by Army leaders. Further, Army leaders see value in further research that would support their ability to assess their organizations on the continuum of learning specified by this model.

Utilization and Dissemination of Findings:

Ultimately, the validated model of Army learning organization maturity can be communicated throughout the enterprise to characterize U.S. Army LOs specifically. As such, the ALOMM can guide conversations about, and modifications to, current and future U.S. Army doctrine. Additionally, the definition and identification of dimensions are critical steps towards the ability to assess and provide feedback on this construct. Finally, the model and the assessment will guide the creation of resources that will support Army leaders in the development of the units they lead and their own leadership. The research was transitioned to MCCOE for use in the Knowledge Management doctrine ATP 6-01.1, and contributed to the Army Learning Concept (currently under review) and finally, the Cyber Center of Excellence (CCoE) entered into a Memorandum of Understanding (dated 1/14/21) with ARI to assess the organizational learning maturity of CCoE and the usefulness of ALOMM for implementing change.

DEVELOPMENT AND VALIDATION OF THE U.S. ARMY LEARNING ORGANIZATION MATURITY MODEL

CONTENTS

	Page
INTRODUCTION	1
Organizational Learning and Learning Organizations.....	1
REVIEW OF LEARNING ORGANIZATIONS	2
Describing a Learning Organization.....	2
Shared Visioning in Learning Organizations.....	3
Leadership and Learning Organizations.....	3
Knowledge Management and Learning Organizations	4
U.S. Army and Learning Organizations	4
DEVELOPMENT AND VALIDATION OF THE MATURITY MODEL	8
Dimension Development	8
Step 1. Review of Academic Literature.....	8
Step 2. Review of Army Doctrine and Publications.....	9
Step 3. Final Team Review and Consolidation	10
Attribute Development	11
Maturity Model Refinement and Validation.....	12
Step 1. Interviews with Senior, Active Duty, and Civilian, U.S. Army Leaders	12
Step 2. Workshop	15
Step 3. Content Validation	16
The Final Maturity Model	19
CONCLUSIONS.....	22
REFERENCES	23

APPENDICES

APPENDIX A: LITERATURE SOURCES	A-1
APPENDIX B: LIST OF ARMY LITERATURE REVIEWED.....	B-1
APPENDIX C: INTERVIEW PROTOCOL.....	C-1
APPENDIX D: INTERVIEW THEMATIC ANALYSIS	D-1

LIST OF TABLES

TABLE 1: EIGHT INITIAL ALOMM DIMENSIONS AND DEFINITIONS9

TABLE 2: DRAFT ALOMM VERSION 111

TABLE 3: INTERVIEW THEMES AND SUPPORTING CODES13

TABLE 4: ALOMM DIMENSIONS – CLARITY, FEASIBILITY, AND TERMS16

TABLE 5: ALOMM ATTRIBUTES – CLARITY AND ALIGNMENT18

TABLE 6: THE U.S. ARMY LEARNING ORGANIZATION MATURITY MODEL20

DEVELOPMENT AND VALIDATION OF THE U.S. ARMY LEARNING ORGANIZATION MATURITY MODEL

As the U.S. Army transitions to multi-domain operations it must adjust how it operates to achieve its mission. Enemies are more elusive than ever, joint military operations are becoming increasingly common, and the United States is being contested in all domains. Such a transition will require the U.S. Army to develop practices that support the rapid adaptation necessary to defeat adversaries and maintain a competitive advantage in operations below and at armed conflict (Training and Doctrine Command [TRADOC], 2017a). Specifically, the U.S. Army—and its subordinate organizations, units, and Soldiers—must develop practices that foster continuous learning and innovation which are critical for building an adaptive and lethal force. The U.S. Army must adopt a new organizational culture in which members at all ranks and grades value and practice the holistic model of learning that embodies a learning organization (LO).

Organizational Learning and Learning Organizations

Importantly, a *Learning Organization* should not be confused with *organizational learning*, a concept that is complementary to Knowledge Management (KM). *Organizational learning* is a process that entails creating, acquiring, retaining, and transferring knowledge within an organization (Easterby-Smith et al., 2000). Organizational learning, while necessary, is not sufficient for building LOs. There are additional practices that must be in place to identify as an LO, though what those practices are, particularly within a military context, require additional research. Generally, a *Learning Organization* refers to an organization that continuously orients itself towards the processes or activities involved in *organizational learning* (Cronin et al., 2014, p. 2), and it adapts by integrating ongoing learning into its systems, processes, and structures (Garvin, 2003; Pedler et al., 1996, Senge 1990; Watkins & Marsick, 1993). However, no single, comprehensive, validated LO model and measurement framework currently exists, despite the existence of research on the elements of LOs (Senge, 1990; Senge et al., 1994; Serrat, 2017; Dixon et al., 2010; Marsick & Watkins, 2003; Watkins & Marsick, 1993). Additionally, while the literature is somewhat consistent on *what* an LO does, *how* LOs operate differ considerably across contexts, requiring a context-specific approach to understanding and developing LOs (Örtenblad, 2015).

The U.S. Army is one large organization with many units and agencies within it that can develop sub-cultures. To be an LO, the Army and all its' subordinate units must understand what defines an LO. Thus, the U.S. Army must determine what an LO is specific to U.S. Army needs, and how the U.S. Army definition may differ from definitions in the civilian context. Accordingly, the intent of this research is to first define and operationalize LOs specific to the U.S. Army, and then to develop a U.S. Army Learning Organization Maturity Model (ALOMM).

Review of Learning Organizations: Literature, Doctrine, and Publications

Defining what it means to be an Army LO begins with a comprehensive literature review of academic and industry publications describing LOs, as well as U.S. Army doctrine and policy. Abstract constructs like LOs are defined in order to enable dialogue and measurement. Defining the construct incorrectly will lead to inaccurate measurement. Given the very unique nature of the U.S. Army, this step is critical. Once an Army LO is defined, it can be measured, feedback can be provided, and developing as an LO is more likely. Without a clear definition of this important but abstract construct the Army is not likely to make progress towards its' goal of maturing further as a learning organization.

Describing a Learning Organization

The literature review first focused on identifying relevant research and theory rooted in scientific principles and from peer-reviewed sources. Each identified source was organized in a database and categorized as either theoretical or empirical in nature. Three LO experts rated each of the 34 sources, using a 3-point scale (1=high, 2=moderate and 3=low) on each of three criteria considered for inclusion: 1) level of methodological soundness, 2) level of theoretical soundness, and 3) relevance to the U.S. Army's operational environment. Next, the LO experts conferred and sources were eliminated that did not have an overall average rating of at least a 2 across all questions for all raters. Ultimately, the team agreed upon the 14 sources (see Appendix A) to inform the development of the U.S. Army LO definition and the ALOMM. This body of literature was identified as core to defining the components of an LO and subsequently the ALOMM, and is further discussed herein.

Senge's Five Disciplines.

In the business world, no one is more pivotal to the understanding of LOs than Peter Senge. Senge, widely lauded as the "father of the LO," first introduced this organizational concept in his book, *The Fifth Discipline* (1990). According to Senge (1990, p.3) an LO is an organization, "*where people continually expand their capacity to create the results they truly desire, where new and expansive patterns of thinking are nurtured, where collective aspiration is set free, and where people are continually learning how to learn together.*" In his focal publication, Senge introduces the reader to the five disciplines that he believes characterize an LO (1990, p. 6-7):

1. **Personal Mastery:** Learning to expand personal capacity to create the results most desired, and creating an organizational environment which encourages all members to develop toward the goals and purposes they choose.
2. **Mental Models:** Reflecting upon, continually clarifying, and improving internal pictures of the world, and seeing how they shape actions and decisions.
3. **Developing a Shared Vision:** Building a sense of commitment in a group, by developing shared images of the desired future state, and the principles and guiding practices by which to get there.
4. **Team Learning:** Transforming conversational and collective thinking skills, so that people as a group reliably develop intelligence and ability faster than could have occurred otherwise.

5. **Systems Thinking:** A way of thinking about, and a language for describing and understanding the forces and interrelationships that shape patterns of behavior. This discipline means the organization knows how to change systems to be more effective, and to act in a way that is attuned with the larger processes of the natural and economic world.

According to Senge, although the disciplines of an LO focus primarily on the outcomes at the collective (i.e., the organization) level rather than the individual level, the characteristics of the individual are critical to the development of an LO. For example, elements of Senge's personal mastery discipline are focused on the development of the individual because the organization itself cannot transform into an LO until its individual members strive for personal mastery. Thus, Senge's five disciplines are hierarchical in nature, building upon one another to establish the desirable characteristics of an LO, beginning with personal mastery as the foundational step. As instrumental as Senge's work was, his book was criticized within the business world as being too theoretical, leading to further research on LOs that is discussed below. While the emphasis on shared visioning remained, this research expanded on Senge's disciplines to include dimensions¹ of leadership and knowledge management. A description of each of the three primary dimensions from the literature, and their relevance to building LOs follows.

Shared Visioning in Learning Organizations

A predominant concept associated with building LOs relates to mutual or shared visioning. Like Senge, Serrat (2017) argues that a shared vision for LOs must be established to inspire change and identify how learning is critical to success. It could be argued that a shared vision is the most important aspect of an LO, because without it, members of the organization would not be committed to achieving LO maturity. Specifically, an organization and its employees must have a commitment to the shared belief that learning is an indispensable behavior worth investing in, and that learning how to learn is a skill to be mastered (Schein, 2010). By empowering employees to get involved in setting and implementing this shared vision, organizations create buy-in from employees, motivating them to trust in and pursue the vision (Watkins & Marsick, 2003).

Leadership and Learning Organizations

Senge's work (1990) does not view leaders in the traditional role of decision maker, but rather in a facilitator or teaching role. For many organizations, however, this type of leader role is not feasible. Research more closely examining the role of the leader in an LO suggests leaders must help the organization frame its vision for the future, and develop or reconfigure the organizations' competencies to address the changing environment (Dixon et al., 2010). To achieve this, leadership should include a mix of people from all levels of the organization who lead in different ways (Mahapatra & Kar, 2016), and leaders must model, champion, and support learning behaviors (Marsick & Watkins, 2003). When leaders demonstrate a strong commitment to learning behaviors, and when learning is strategically aligned with desired organizational

¹ While Senge (1990) outlined the theoretically-based "disciplines" of learning organizations, we use the term "dimensions" throughout this report to describe more specifically what learning organizations do.

objectives, employees are more likely to embrace change. Ultimately, employees need guidance from leaders to understand what it means to be an LO and how to adapt and adjust behaviors to support the transformation to a more mature LO.

Transformation to a mature LO also requires leaders to establish a culture that promotes experimentation by rewarding and supporting both learning and innovations (Goh, 1998). In LOs, employees are encouraged to be reflective, and teamwork and group problem solving are emphasized (Goh, 1998). To embrace the processes associated with being an LO, and develop a climate of continuous learning where creative ideas are generated, research suggests that leaders throughout the organization must also encourage continual knowledge sharing among employees (Ghaffari et al., 2017). Ultimately, a strong LO culture of continual knowledge creation, sharing, and experimentation positions organizations to be competitive by setting the conditions for members to identify and leverage relevant knowledge, wherever it may exist, and to be creative in solving organizational problems (Ghaffari et al., 2017).

Knowledge Management and Learning Organizations

Managing the information and knowledge that resides with employees is a critical task of an LO. In order to benefit from knowledge that has been created or acquired, that knowledge must be shared and distributed appropriately throughout the organization (Dixon, 1992). Commonly, organizations rely too heavily on technology as a means of performing this task. Though technology can be especially useful as a means of storage, organization, and retrieval of information (Marsick & Watkins, 2003), technology alone does not ensure information and knowledge are appropriately disseminated, and importantly, integrated into the behaviors of the organization. As an example, having access to and referencing lessons learned can be useful for decision making by helping ensure previous failures are not repeated. However, establishing a system to house these lessons learned is only the first step. Individuals must be aware of the KM systems available to them and how to access them. Furthermore, KM systems need to be maintained to ensure dissemination channels stay current, information remains relevant, and thus people are motivated to use them (Calton, 2018). Effective KM is more than adopting the latest technological advancement, rather – KM must be rooted in the values, culture, and behavioral practices of an organization to drive ongoing knowledge dissemination and exchange. Most importantly, for successful information sharing and learning to occur there must be a shared understanding of the purpose and value of the KM system or process that permeates the organization (Serrat, 2017).

U.S. Army and Learning Organizations

While the previous literature helped to identify aspects of LOs that may be consistent across organizational contexts, it is necessary to recognize the U.S. Army as a unique entity with a force size that is unmatched and a mission unlike any in the civilian sector. As such, following the academic literature review, the U.S. Army's missions, visions, and practices, as described through doctrine and publications, were considered in understanding how LOs may specifically apply to the U.S. Army.

To identify U.S. Army doctrine and publications relevant to this research, two researchers analyzed all active doctrine and publications on the Army Publishing Directorate and on the Training and Doctrine Command (TRADOC) websites (www.armypubs.army.mil and www.tradoc.army.mil, under “Doctrine and Training”). Each researcher, created a list of all active doctrine and publications on these two sites and then opened each active document and performed a search for the terms “learning organization,” and “organizational learning.” Through familiarity with doctrine and suggestions from U.S. Army subject matter experts (SMEs), the two researchers identified additional foundational sources important to understanding the U.S. Army and the future operational environment (e.g., ADP 1-0, The Army). Collectively, the researchers identified 14 U.S. Army doctrine and publications to further investigate (See Appendix B). A brief summary of key findings follows.

In *Army Vision: Force 2025* (ARCIC, 2014), the U.S. Army articulated its strategic vision for how it plans to employ an increasingly broad range of capabilities to meet the challenges posed by complex operating environments across various global missions. The U.S. Army’s plan for the future force is organized around eight key characteristics that will enable success, regardless of the mission assigned, or the threat encountered (ARCIC, 2014). More specifically, the U.S. Army envisions that it will be their people—leaders and units—who will propel the U.S. Army’s transformation into an agile, expert, innovative, interoperable, expeditionary, scalable, versatile, and balanced force. It is this transformed future force that the authors contend will provide further strategic advantage during future crises through the leveraging of relationships and learning.

To be able to leverage learning to address future challenges, the U.S. Army must invest in furthering itself as a learning organization. The first sentence of the first page of *The U.S. Army Learning Concept for Training and Education* states, “the Army is a learning organization,” (TRADOC, 2017b, p. iii). Unfortunately, this publication does not explicitly define or describe what an LO is, though it does provide guidance for the learning of the future force and asserts, “the objective of U.S. Army learning is to provide forces, as part of joint, inter-organizational, and multinational efforts, trained and ready to accomplish campaign objectives and protect U.S. national interest,” (TRADOC, 2017b, p. 15). Further, to be effective in accomplishing those objectives and their missions, the learning concept states that U.S. Army organizations should have a learning strategy that is outcomes-based, contributes to readiness, enables agility, and promotes innovation (TRADOC, 2017b).

One investment the U.S Army made to further itself as a learning organization was the development of a new U.S. Army education system – the U.S. Army University. This system is part of the U.S. Army’s vision to immerse Soldiers and U.S. Army civilians in a progressive, continuous, learner-centric, competency-based learning environment. The learning culture that the U.S. Army University seeks to create is intended to promote access to educational programs, and should enhance collaboration, information sharing, and integration of knowledge in daily operations. The ability to easily share information and knowledge throughout the organization is a critical function of an LO (Dixon, 1992), thus it is anticipated that the creation of this new U.S. Army education system will contribute to the Army’s further development as an LO.

In addition to implementing structures and systems that support the development of an LO, the U.S. Army also seeks to understand the leaders' role in promoting learning and innovation. The *U.S. Army Innovation Strategy* (Headquarters Department of the Army [DA], 2017b), intended to accelerate innovation in the U.S. Army by improving performance outcomes, embraces some of the fundamentals of LOs, and identifies related leader actions. For example, the first goal to increase innovation specifies leaders at all levels must reward experimentation and learn from mistakes. This goal supports the U.S. Army's need for leaders who set the conditions for a culture of learning to emerge so their Soldiers and units can thrive in conditions of complexity and uncertainty, (ARCIC, 2014). This goal is also consistent with the literature on mature LOs, which have been shown to promote experimentation, allowing individuals to feel open and comfortable exploring new, innovative ideas (Goh, 1998). Thus, *The U.S. Army Innovation Strategy* (DA, 2017b) is quite consistent with building mature Army LOs.

However, achieving the innovation goal may require a significant cultural shift. The U.S. Army is a traditionally stove-piped organization that relies heavily on hierarchy and authority (both rank and role). In many instances this reliance is necessary for the safety of our Soldiers and our national interests (e.g., combat or humanitarian response). When it comes to learning, however, this firm deference to hierarchy and authority could stifle innovation from knowledge creation through knowledge sharing. Breaking with traditional cultural constraints to share knowledge will require both pushing and pulling information from all directions to include vertically (both the traditional top-down, *but also* bottom-up), horizontally (from peer to peer individually or organizationally), and diagonally (across all ranks and organizational lines). Furthermore, it will necessitate a collaboratively developed shared vision to which Soldiers feel committed. Senior leaders will play a pivotal role in the adaptation of the U.S. Army culture by emphasizing and rewarding continuous learning and knowledge sharing across the entirety of the enterprise.

From the academic literature, it is understood that LOs must maintain a focused orientation towards learning within the context in which the organization competes or exists. For the U.S. Army, this orientation is on the state of national security as it was, is now, and can be in the future. For the Army, the focused learning requires vigilant and comprehensive study of history, and an understanding of the current and future operational environments which must be gained through collaboration. An LO continually orients itself in a future-focused posture, and positions itself to readily acquire new capabilities to allow for prompt responsiveness to ever-changing demands and requirements. The Army will have to support learning systemically, so that leaders can connect the "who, what, where, when and how" of their environment. Theory suggests a critical element of an LO is adapting based on what is perceived in the environment. Despite the size of the organization, the Army will need to rapidly adapt at every level, from the individual Soldier to the highest institution in order to mature as a learning organization. The learning and adaptation occur because information is shared vertically, horizontally from the top down and from the bottom up, and diagonally. Finally, the entire organization must co-create and share in the vision of what they are defending.

Given this understanding of the Army's mission, culture, structure, and norms and with an understanding of the academic literature regarding the elements of LOs within private industry, we propose a definition of a U.S. Army LO as *one that continuously orients itself*

towards comprehensive learning, disseminates what is learned, and adapts based on what is learned in order to achieve a future-oriented shared vision. This definition is foundational in developing a model to guide future measurement of learning organization maturity.

Development and Validation of the Maturity Model

Because learning is continuous, the best way to measure an organization's learning capability is with a maturity model. The first step involves creating the framework for identifying and describing the components of U.S. Army LOs. The decision of how to structure the ALOMM was important as maturity models typically reflect either descriptive characteristics of an organization (what an LO *is*) or point to functions of an organization, that is major processes or activities carried out within the organizations (what an LO *does*). Since functions are more action-oriented in nature and would provide better guidance to U.S. Army organizations, the ALOMM was developed to be a functional model that describes the processes and activities U.S. Army organizations engage in as an LO. The development of a maturity model starts by identifying the functional dimensions and associated attributes. These are defined as follows:

- **Dimensions:** These are the major components that comprise an LO. Specifically, dimensions describe the overarching functions, at the institutional level, that distinguish organizations as LOs. Each dimension is further comprised of a set of attributes.
- **Attributes:** These are subcomponents of a dimension and represent the specific things that LOs *do* in fulfilling the overarching functions of a given dimension. The combination of related attributes forms a dimension.

Dimension Development

Step 1: Review of Academic Literature.

First, established methods of thematic analysis of qualitative data (Braun & Clarke, 2006) were used to analyze the relevant literature from academic and private industry LO. Briefly, six members of the research team independently reviewed these key sources and recorded judgments of the critical functions of the LOs analyzed. Next, through several working sessions, each member's themes were discussed until the team reached saturation and consensus, resulting in ten common themes. The ten themes included: teamwork/collaboration, joint visioning, inquiry, organizational systems, knowledge management, strategic leadership to empower subordinates toward learning, systemic thinking and sense making, creating a culture that cultivates learning, dialogue and communication, and capability enhancement. Through examining those themes, major dimensions of LOs were identified and refined, based on the following criteria: (1) how well they represent well-established processes or functions of an LO, (2) the degree to which the dimensions were distinct from one another, and (3) whether the level of analysis and intervention was consistent across dimensions. By prioritizing institutional constructs, U.S. Army organizations can identify areas for improvement that would be meaningful to all levels of the organization. There were two instances where themes seemed to have heavy overlap with one another or were better represented as sub-elements to another one of the themes. Specifically, the research team determined that *Dialogue/Communication* would not constitute its own dimension as this concept should be embedded within every dimension. A similar determination was made

for the *Capability Enhancement* theme because it reflects an outcome rather than a function of an LO. This resulted in a final list of eight major dimensions of LOs (see Table 1).

Table 1.

Eight Initial ALOMM Dimensions and Definitions From Literature Themes and Doctrine

<u>Theme/Dimension</u>	<u>Definition</u>
Teamwork/Collaboration	<u>1. Interdependency</u> : Recognizing unique capabilities and learning to work in synchronicity according to those capabilities to optimize work flow.
Joint Vision	<u>2. Joint visioning</u> : Developing a shared learning strategy that leads to having unified goals, perspectives, and a mutual purpose for work.
Inquiry	<u>3. Inquiry</u> : Searching continuously for new learnings, views, and information and promoting dialogue to challenge current thinking that leads to improvement.
Organizational Systems	<u>4. Systems Integration</u> : Creating and valuing technology systems that share learnings and align with real-time work needs.
Knowledge Management	<u>5. Knowledge Management</u> : Identify, capture, storage, transfer, and apply explicit (i.e., information) and tacit (i.e., intuitive "know how") learnings for organizational judgement.
Strategic Leadership/Empowering employees toward learning	<u>6. Empowerment</u> : Exercising strategic leadership to cultivate ownership in development through removing obstacles, incentivizing, and modeling learning.
Systemic Thinking	<u>7. Systemic Thinking</u> : Reflects systemic, global thinking and actions to connect the organization and align workflow according to internal and external environment; recognizing that organizations and their challenges are layered and complex.
Culture Creation/Cultivation of learning	<u>8. Cultural Orientation</u> : Promoting beliefs, values, and attitudes that support continuous and intentional learning, viewing mistakes as learning opportunities, and utilizing feedback loops for ongoing assessment.

Step 2: Review of Army Doctrine and Publications

As mentioned above, dimensions were identified based on themes from existing academic and industry literature and empirical evidence. The importance of starting with prevailing

science and sound theory to develop the LO framework was to ensure the eventual Army model would not be biased by the current LO maturity status of U.S. Army organizations. After initially identifying the dimensions from scientific sources, the U.S. Army's doctrine, publications, culture, practices, structures and operational nuances (relative to organizations in industry) was used to define the dimensions, and to develop the attributes along with a consideration of the definition of an Army learning organization. Review of U.S. Army doctrine and publications resulted in the definitions of the eight dimensions, relevant to U.S. Army LOs.

Step 3: Final Team Review and Consolidation

In the final step of dimension development, the eight dimensions were evaluated for redundancy or conceptual overlap. When conceptual overlap was identified by the research team, content was consolidated to yield dimensions that were more distinct from one another. For example, empowerment was combined with cultural orientation to fully represent the important role of senior leaders at the institutional level in setting the conditions for LOs, and to reduce redundancy in the model. Further, as highlighted by the previous example, each research team member also reviewed the titles and definitions of the eight dimensions to identify any challenges with the level at which analysis and intervention might occur. In a few cases, it was determined that certain themes did not provide an institutional perspective, which was considered an important objective for the ALOMM. By prioritizing institutional constructs, Army organizations can identify areas for improvement that would be meaningful to all levels of the organization. For example, Williams (2007) conceptualized the construct of *Team Learning* in a way that aligned to other concepts in the literature, such as *interdependency* and *team collaboration*. However, because "teams" refer to a specific level of the Army's hierarchical structure, this concept was adapted to be more institutional in nature and then captured within the definition of dimension 4: Synchronization of Capabilities. Similarly, systemic thinking, an individual rather than institutional skill, and systems integration, a closely related construct, were integrated into Dimension 3: Exploration of New Perspectives, and Dimension 4: Synchronization of Capabilities respectively.

After detailed review and discussions among team members, the final refinement exercise resulted in these five dimensions and definitions:

- Dimension 1: Cultivation of Learning Support (previously dimensions 6 and 8): Maintenance of a culture that is conducive to continuous learning for individuals and teams by removing obstacles that inhibit learning and incentivizing and modeling behaviors that support ongoing learning.
- Dimension 2: Orientation Toward a Shared Future (previously dimension 2): A common understanding and strategy about learning that leads to unified goals, perspectives, and a mutual purpose for work.
- Dimension 3: Exploration of New Perspectives (previously dimension 3 and 7): Continuous search for new perspectives and information to challenge current thinking and lead to improvement. This includes utilizing feedback loops for ongoing assessment.
- Dimension 4: Synchronization of Capabilities (previously dimension 1 and 4): Honing unique attributes of systems and people through learning to optimize interdependencies.

- Dimension 5: Management of Organizational Knowledge (previously dimension 5): Identifies, captures, stores, transfers, and applies explicit (i.e., information) and tacit (i.e., intuitive "know how") knowledge to improve organizational decision-making.

Attribute Development

With five final dimensions identified and defined, we again referred to all previously reviewed academic and military sources and sought to develop a comprehensive list of LO attributes (i.e., observable actions or behaviors) associated with each dimension. For example, for dimension 1, actions that would theoretically represent *Cultivation of Learning Support* include behaviors such as communicating the value of learning, and recognizing and rewarding learning. After developing an exhaustive list of actions representative of each of the dimensions, the team iteratively reviewed and refined the attributes to evaluate their fit within each dimension and to reduce overlap across dimensions. The result of the iterative attribute development process was a draft model comprised of a total of 18 attributes across the five dimensions (see Table 2).

Table 2.

Draft ALOMM Version 1

<u>Dimension</u>	<u>Attributes</u>
D1: Cultivation of Learning Support -Maintenance of a culture that is conducive to continuous learning for individuals and teams by removing obstacles that inhibit learning and incentivizing and modeling behaviors that support ongoing learning.	<ol style="list-style-type: none"> 1. Communicates value for learning to all levels of the organization. 2. Recognizes and rewards learning behaviors. 3. Promotes continuous self- and organizational-improvement through the pursuit of learning. 4. Provides opportunities and resources to facilitate learning and development.
D2: Orientation Toward a Shared Vision - A common understanding and strategy about learning that leads to unified goals, perspectives, and a mutual purpose for work.	<ol style="list-style-type: none"> 1. Engages in ongoing collaborative activities to develop strategies that support learning. 2. Achieves a unified purpose for how work gets accomplished to support mission accomplishment. 3. Works together to integrate learning into daily operations and pursuit of missions.

<u>Dimension</u>	<u>Attributes</u>
D3: Exploration of New Perspectives - Continuous search for new perspectives and information to challenge current thinking and lead to improvement. This includes utilizing feedback loops for ongoing assessment.	<ol style="list-style-type: none">1. Promotes the exploration of new concepts for testing and validating approaches to mission achievement.2. Conducts ongoing inquiry and formal assessment of how well learning is being supported.3. Seeks out learning that promotes entrepreneurial and innovative behaviors.4. Promotes prudent risk-taking and treats honest mistakes without prejudice as learning opportunities.
D4: Synchronization of Capabilities - Honing unique attributes of systems and people through learning to optimize interdependencies.	<ol style="list-style-type: none">1. Exercises collaboration and integration of capabilities across the organization to achieve a common goal.2. Leverages other perspectives and experiences to create value for the organization regardless of status and group membership.3. Engages in systems thinking when addressing challenges by recognizing that organizations both internal and external are multi-layered and intersect in complex ways.
D5: Management of Organizational Knowledge - Identifies, captures, stores, transfers, and applies explicit (i.e., information) and tacit (i.e., intuitive "know how") knowledge to improve organizational decision-making.	<ol style="list-style-type: none">1. Maintains processes for knowledge exchange and continuity of operations.2. Engages the learning groups to promote the transfer and integration of knowledge.3. Adopts technology systems that share learning and align with business processes and real-time work needs.4. Captures and stores lessons learned in a way that is accessible to the community that needs the knowledge.

Maturity Model Refinement and Validation

To further refine and validate the ALOMM dimensions and attributes, the research team engaged in a three-step process. In Step 1, we conducted interviews with senior, active duty and civilian U.S. Army leaders to obtain their input regarding the initial draft of the ALOMM and how they envision mature U.S. Army LOs functioning. In Step 2, we conducted a workshop to vet the ALOMM with stakeholders and subject matter experts across U.S. Army organizations. These SMEs included leaders with expertise in learning or in areas related to LOs such as training, education, and development within the U.S. Army. Finally, in Step 3 we gathered

content validation evidence for the ALOMM via an online survey with progressive, future-oriented U.S. Army Soldiers and civilians nominated by participants in step 2. Each of these steps is described in more detail in the following sections.

Step 1: Interviews with Senior, Active Duty and Civilian, U.S. Army Leaders.

For the first step in reviewing the ALOMM, we conducted interviews with senior U.S. Army leaders in key positions of responsibility; three with general Officers and one with a senior civilian leader from a future-oriented U.S. Army organization. All participants possessed extensive knowledge of the U.S. Army and were identified as experts in U.S. Army LOs either because of efforts undertaken while in command, written communication, or organizational mission. The goal of this data collection was to engage in conversations about factors that contribute to, or hinder the advancement of learning organizations. Each semi-structured interview lasted approximately 60 minutes (see Appendix C). Participants were encouraged to expound upon responses to interview questions. The interview protocol was designed to facilitate a more free-flow, dynamic conversation to allow senior leaders to share their expertise and experience in LO-related concepts.

In these interviews, the research team gathered senior leader feedback regarding the factors that comprise a U.S. Army learning organization—including how learning occurs and is assessed within their respective organizations. The leaders also provided information regarding current U.S. Army learning initiatives, how the strategic direction of the U.S. Army might impact current LO initiatives, and how a proposed LO framework might challenge the U.S. Army's current approach to learning, or face obstacles in its implementation.

Analyzed interview data. Three members of the research team who did not participate in the interviews, separately reviewed transcripts from the interviews to perform thematic analysis in accordance with previously established procedures (Braun & Clarke, 2006). The three members of the research team engaged in this data-driven coding process were blind to the ALOMM dimensions, thus they were able to identify and create an unbiased summary of themes from the interviews of senior Army leaders.

In the first phase, the three members of the research team individually generated codes, and then met to compare and discuss their individual sets of codes and come to a consensus on the final set of codes to be used for analysis. Next, the researchers independently coded all of the interview data using this final set of codes. Finally, the researchers independently identified themes and grouped coded interview comments within these themes. The researchers then met and came to consensus on seven overall themes, four of which were identified as functions of LOs: critical thinking is the default, members collaborate effectively, learning is a continuous activity, and members at all levels of the organization are empowered. The remaining three themes were focused on outcomes of LOs, barriers to LOs, and the leader role in LOs and were not used to refine the ALOMM, but were important in understanding LOs specific to the Army context.

The level of support for a given theme—which ranged from weakly to extensively supported—was determined by evaluating both the frequency and relevance of interview

comments aligned to each theme’s supporting codes (see Appendix D). The research team then compared the final themes to the initial draft ALOMM to determine whether, and the extent to which, interview themes supported one or more of the dimensions and attributes of the draft ALOMM (see Table 3). The resulting picture was fairly consistent with the broader dimensions of the draft ALOMM. However, the thematic analysis of the interview data also informed ways in which some areas of the ALOMM could be better aligned with what senior Army leaders articulated to be key functions and attributes of Army LOs. For example, one topic that emerged as critical was the need to clarify the leader’s role in not only establishing a culture conducive to learning but also maintaining that culture. A second topic that surfaced was the need to learn and adapt quickly, particularly in a deployed or combat environment.

Table 3.

Interview Themes and Supporting Codes

<u>Interview Theme</u>	<u>Supporting Codes</u>	<u>Alignment with ALOMM</u>
1. Critical thinking is the default: members at all levels of the organization reflect and look for ways to improve (within the appropriate boundaries)	1a. Open and candid communication throughout 1b. Critical thinking is the default 1c. Organization is oriented on the future 1d. Organizational members have a shared understanding	<ul style="list-style-type: none"> • Dimension 1, Attribute 1 • Dimension 3, Attributes 1 and 2 • Dimension 2, Attribute 1, and Dimension 3, Attribute 3 • Dimension 2, Attribute 2
2. Members collaborate effectively to solve problems: the focus is on the needs of the institution over individual learning, though both are important; everyone contributes	2a. Members collaborate effectively to solve problems 2b. Boundary spanning: learn from outside organizations	<ul style="list-style-type: none"> • Dimension 4, Attribute 1 • Dimension 4, Attribute 2
3. Learning is a continuous activity that never ceases	3a. Learning is formalized 3b. Iterative/continuous learning/improvement is default mode of operations 3c. Knowledge is managed 3d. Resources dedicated to learning 3e. Learning is incentivized	<ul style="list-style-type: none"> • Dimension 2, Attributes 1 and 3 • Dimension 1, Attribute 3 • Dimension 5, Attributes 1, 2, and 4 • Dimension 1, Attribute 4 • Dimension 1, Attribute 2

Table 3.

Interview Themes and Supporting Codes

<u>Interview Theme</u>	<u>Supporting Codes</u>	<u>Alignment with ALOMM</u>
4. Members of the organization at all levels are empowered to take initiative, try new things, and make mistakes (in the spirit of learning)	4a. Foundation of trust exists in organization 4b. Organizational members are empowered 4c. Mistakes treated as learning opportunities	<ul style="list-style-type: none">• Dimension 1, Attribute 1• Dimension 1, Attribute 2• Dimension 3, Attribute 4

Refined the ALOMM. Given the ALOMM was by-and-large supported by the interview data, the refinements at this stage of ALOMM development were minor and entailed revisions to the wording of definitions to emphasize the continuous nature of learning and the role of leadership in supporting a learning culture that promotes innovation and organizational agility.

Step 2: Workshop.

Next, the research team held a workshop with 23 subject matter experts (SMEs; active duty E8-E9s, active duty O3-O6s, and DA civilians GS12-GS15), in person or participating via teleconference, to review the refined ALOMM. The first goal of the workshop was to capture perspectives and insights from distinguished leaders on Army learning (e.g., how it typically manifests across Army organizations), to better understand current Army efforts and challenges that may be contributing to or hindering Army organizations from maturing as LOs. The second goal of the workshop was to obtain feedback regarding the current ALOMM to begin to establish evidence for or against content validity.

The workshop began with each participant receiving a hard copy of the ALOMM along with a handout for recording their thoughts and ideas regarding each component of the model. The ALOMM was then introduced and an open discussion ensued of how Army organizations conceptualize learning; experiences and observations the participants had related to learning organizations were also generated. The research team then used a semi-structured list of questions to elicit the workshop participants' input on each of the specific dimensions and attributes, how well the ALOMM aligned with their perceptions of Army LOs, and the Army's needs that could be supported by Army organizations advancing as LOs. The questions were designed to not only verify the ALOMM was taking a form suitable for Army organizations, but also to obtain actionable feedback for further refining the ALOMM. Though the workshop design was conducive to generating major feedback (e.g., overlapping or missing dimensions), different from the interviews, most feedback in the workshop focused on clarifying or simplifying the language in the model.

Additionally, as part of this workshop, participants helped the researchers identify and specify indicators of LO maturity under each of the attributes. Indicators are measurable behaviors that could be used for developing assessment items in the second major phase of this research. Throughout the workshop, participants used the handouts to record their thoughts and

notes and returned these materials to the research team at the conclusion of the workshop. Finally, the research team requested the participants' continued support for the research effort by having each participant identify one or two people from their organization who had not taken part in the interviews or the workshop who might be willing to participate in the final step of ALOMM validation (aka snowball sampling, described in Step 3).

To process the workshop data and identify implications for ALOMM refinements, the research team convened to discuss key points derived from participant verbal and written feedback. In general, the revisions to the ALOMM suggested by workshop findings largely entailed simplification of language and reorganization of attributes, though a few new concepts emerged. First, the LO function of identifying where learning is needed was reflected in previous versions of the ALOMM, but workshop participants agreed that knowing where learning is not needed (e.g., where best practices are already in place) was important for identifying the need for change (i.e., not implementing changes just for the sake of change). Based on this feedback Dimension 3, Attribute 1 was modified to read 'Conducts ongoing assessment of the organization to determine where learning is needed.' Second, this also led to a discussion of the importance of Army organizations learning from one another. When other organizations in the Army are known to do a particular thing well, Army LOs incorporate those best practices rather than 'reinventing the wheel.' This discussion informed a revision of Attribute 2 in Dimension 5 regarding the connection of *communities of interest* to exchange knowledge and share best practices.

Step 3: Content Validation.

The next step in developing the ALOMM was to confirm the content validity of the new version of the ALOMM that had been refined based on the outcomes of the workshop. To establish the content validity of the ALOMM, the research team reached out to the 12 individuals identified by workshop participants as being subject matter experts in the topic of U.S. Army LOs. Of the 12 possible participants, nine responded that they would participate in an online survey (see Tables 4 & 5). A link to the survey was sent to all nine participants via email with the refined ALOMM and project summary included as attachments. Five survey respondents (56% response rate) answered questions regarding the *clarity* of terms at the dimension level and at the attribute level, the *feasibility* of implementing changes on a particular dimension in an Army organization, how well dimension definitions *reflect the concept* of the dimension titles, *alignment* of attributes to their intended dimension, and the *comprehensiveness* of attributes within each dimension.

Results of content validation.

Dimension Results. The results of the three questions on dimensions (clarity, feasibility, and reflects concept) are shown in Table 4. As indicated, two participants stated the definition for Dimension 4, *Synchronization of Capabilities*, was not clear. Of these two participants, one provided feedback stating the terms "achieve interdependencies" in the definition was not clear. The researchers all agreed that "achieves interdependencies" was carefully selected, was commonly used in doctrine, and reflects the coordination and integration reflected by "synchronization." Thus, no changes were made. The other participant stated "Optimization"

may be a better term than “Synchronization” in the Dimension title. All researchers agreed “Synchronization” was in the title specifically as it comprises integration and coordination and conveys things are working in a complementary fashion. It would be possible to “optimize” your capabilities, and yet not have interdependency that is complementary. Thus, no changes were made. All other definitions were clear to the participants.

All respondents indicated it would be feasible for their organization to make changes if improvements were needed for Dimension 2: *Orientation toward a Shared Future*, and Dimension 5: *Management of Organizational Knowledge*. Further, all but one respondent found improvements feasible for the remaining three dimensions, Dimension 1: *Cultivation of Learning Support*, Dimension 3: *Exploration of New Perspectives*, and Dimension 4: *Synchronization of Capabilities*. For these dimensions, participants did not express an issue with the feasibility of the dimensions themselves, but instead believed the inability of his/her organization to make changes was due to the current generation of Army leaders thinking tactically and instead of critically, thus making it difficult for these leaders to see other perspectives and develop an organization in this way. Given the context of the comment, no changes were made to the model.

Finally, only Dimension 2: *Orientation toward a Shared Future* and Dimension 5: *Management of Organizational Knowledge*, had mixed responses regarding how well the dimension title reflected the definition of the concept. Two respondents indicated the definition of Dimension 2 did not reflect the concept suggested by the title, and one respondent presented this same concern for Dimension 5. For Dimension 2, one participant elaborated on their disagreement and suggested that the title change from “Shared Future” to “Shared Vision.” However, given that the initial literature review, interviews with Army leaders, and workshop discussions suggested using the term “vision” could be confused with existing Army use of that term, this change was not implemented. On Dimension 5, minor wording changes were suggested, indicating it was important to capture the act of identifying knowledge gaps within that dimension. This suggestion was incorporated into the final ALOMM.

Table 4.

ALOMM Dimensions – Clarity, Feasibility, and Terms

<u>Dimension</u>	Clarity		Feasibility		Reflects Concept	
	Yes	No	Yes	No	Yes	No
Dimension 1: Cultivation of Learning Support	5	0	4	1	5	0
Dimension 2: Orientation toward a Shared Future	5	0	5	0	3	2
Dimension 3: Exploration of New Perspectives	5	0	4	1	5	0
Dimension 4: Synchronization of Capabilities	3	2	4	1	5	0
Dimension 5: Management of Organizational Knowledge	5	0	5	0	4	1

Note: **Clarity** = Dimension is clear. **Feasibility** = feasible to make changes in their organization on a given Dimension. **Reflects Concept** = definition of the Dimension reflects the concept of the title of the Dimension. Numbers indicate *n* agreement/disagreement (*N* = 5).

Attribute Results. Table 5 shows the ALOMM validation results for clarity and alignment of each attribute of the ALOMM. All but one attribute, (Dimension 2 Attribute 1: *collaborates to develop strategies for learning*), had definitions that were clear enough that all of the respondents understood what the attribute meant. The one respondent who indicated a lack of clarity in the definition for Dimension 2, Attribute 1 again suggested using the term “shared vision” and, as discussed in the dimension results, this change was not incorporated.

Of the 18 attributes, three participants flagged four as lacking alignment to their associated dimensions. For each of these, respondents were prompted to describe their rationale for why they believed the attributes were not fully aligned with their intended dimension. The research team’s examination and discussion of respondents’ input resulted in a decision to not make additional changes to the ALOMM. The next four paragraphs further elaborate on this decision.

Dimension 3, Attribute 1: Conducts ongoing assessment of the organization to determine where learning is needed. One respondent indicated the attribute aligned better with Dimension 1. However, Dimension 1, *Cultivation of Learning Support*, is about setting and maintaining a culture that is conducive to learning, whereas this attribute reflects purposeful assessment of new ideas or solutions. Thus, the research team determined these nuances were not recognized and did not take action based on this single data point. One other respondent indicated that this attribute was unrelated to questioning current thinking or finding new perspectives and thus, was not aligned to Dimension 3, *Exploration of New Perspectives*, as intended. However, purposeful and ongoing assessment in an organization can precede the exploration of new perspectives. In line with important discussions in the Step 2 SME workshop, organizations must first determine where learning is needed and avoid seeking out new ways of doing things simply for the sake of change. Thus, no modifications to this attribute were made.

Dimension 4, Attribute 1: Integrates capabilities across the organization to achieve a common goal. One respondent indicated they equated “synchronization” in the dimension title with the term “integration” in the attribute definition and stated the use of the terms indicated inconsistency in the understanding of capability relationships. Researchers again agreed that the use of the term synchronization in the Dimension 4 title is intended to convey that diverse organizational capabilities are working in a complimentary fashion once they are *integrated*. It is possible for organizational capabilities to be integrated but not be synchronized in a way that achieves interdependencies. Integration, a concept reflected in Attribute 1, is only one component of synchronization, thus, no change was made to Dimension 4 Attribute 1.

Dimension 4, Attribute 2: Leverages diverse perspectives and experiences to create value for the organization. One respondent suggested this attribute aligned better with Dimension 3. However, Dimension 3 and its component attributes all reflect the concept of fostering creativity to improve organizational processes, whereas Dimension 4 reflects the concept of synchronizing and aligning capabilities to be more effective. While these nuances may appear semantically small, they are critical in the execution of the functions of these dimensions. Thus, the concept of incorporating viewpoints from various members of the organization across different capabilities as needed to achieve synchronization and work toward common goals was determined to be

better aligned to Dimension 4 than Dimension 3 and no changes were made to the ALOMM as a result of this point for feedback.

Dimension 4, Attribute 3: Considers the complex relationships among environmental and organizational elements when identifying courses of action. One respondent stated that developing a course of action is inherent to a decision process but acknowledged considering the relationships among organizational elements is required when formulating alternative courses of action. Therefore, although the respondent indicated misalignment in response to the survey question, the elaboration provided in their comment did not indicate they believed this attribute was truly misaligned. Ultimately, this was not an actionable suggestion and no change to the ALOMM was made in response to this point of feedback.

Table 5.

ALOMM Attributes – Clarity and Alignment

<u>Attribute</u>	<u>Clarity</u>		<u>Alignment</u>	
	Yes	No	Yes	No
Dimension 1 Attribute 1	5	0	5	0
Dimension 1 Attribute 2	5	0	5	0
Dimension 1 Attribute 3	5	0	5	0
Dimension 1 Attribute 4	5	0	5	0
Dimension 2 Attribute 1	4	1	5	0
Dimension 2 Attribute 2	5	0	5	0
Dimension 2 Attribute 3	5	0	5	0
Dimension 3 Attribute 1	5	0	3	2
Dimension 3 Attribute 2	5	0	5	0
Dimension 3 Attribute 3	5	0	5	0
Dimension 3 Attribute 4	5	0	5	0
Dimension 4 Attribute 1	5	0	4	1
Dimension 4 Attribute 2	5	0	4	1
Dimension 4 Attribute 3	5	0	4	1
Dimension 5 Attribute 1	5	0	5	0
Dimension 5 Attribute 2	5	0	5	0
Dimension 5 Attribute 3	5	0	5	0
Dimension 5 Attribute 4	5	0	5	0

Note: Clarity = Attribute is clear. *Alignment* = the Attribute is aligned with the title and definition of the Dimension. Numbers indicate *n* agreement/disagreement (*N* = 5).

The Final Maturity Model

In sum, the results of the validation survey supported the ALOMM. Only one minor revision occurred to the definition of Dimension 5 to incorporate the importance of addressing knowledge gaps in the organization and to optimize performance. The final, content-validated ALOMM is shown in Table 6. This model contributes to the science of understanding context-specific LOs by providing a model specific to understanding LOs in the U.S. Army.

Table 6

The U.S. Army Learning Organization Maturity Model

Dimension 1: Cultivation of Learning Support	
Maintaining a culture that is conducive to continuous learning for individuals and teams by providing resources, removing obstacles and incentivizing and modeling behaviors that support learning.	
Attribute 1	Communicates the value of learning, new ideas and open dialogue across all levels of the organization.
Attribute 2	Recognizes and rewards initiatives to generate and share new knowledge.
Attribute 3	Encourages learning that promotes continuous self- and organizational- improvement.
Attribute 4	Provides resources and opportunities to enable learning and development.
Dimension 2: Orientation toward a Shared Future	
Creating a shared organizational vision and a common understanding of how learning is used to collectively achieve the vision.	
Attribute 1	Collaborates to define strategies for learning to achieve shared goals.
Attribute 2	Demonstrates a unified purpose for how learning is used to create change and achieve a shared organizational vision.
Attribute 3	Works together to integrate learning into daily operations.
Dimension 3: Exploration of New Perspectives	
Searching continuously for new perspectives and information and challenging current thinking to give rise to improvements.	
Attribute 1	Conducts ongoing assessment of the organization to determine where learning is needed.
Attribute 2	Challenges current practices and generates new methods for achieving objectives.
Attribute 3	Applies new ideas that lead to innovation.
Attribute 4	Builds a foundation of trust to encourage generation and implementation of new knowledge.
Dimension 4: Synchronization of Capabilities	
Aligning capabilities and resources to achieve interdependencies that promote learning and enhance effectiveness.	
Attribute 1	Integrates capabilities across the organization to achieve a common goal.
Attribute 2	Leverages diverse perspectives and experiences to create value for the organization.
Attribute 3	Considers the complex relationships among environmental and organizational elements when identifying courses of action.
Dimension 5: Management of Organizational Knowledge	
Engaging in ongoing activities to identify, capture, store, transfer and apply knowledge to address knowledge gaps and optimize performance.	
Attribute 1	Maintains processes for knowledge exchange and continuity of operations.
Attribute 2	Connects communities of interest to promote knowledge exchange and integration.
Attribute 3	Leverages systems to share knowledge that aligns with work requirements.
Attribute 4	Captures and disseminates lessons learned.

Conclusions

Clearly, the U.S. Army faces challenges that require continuous learning, and not just in one MOS, not in one branch or domain, but continuous learning is required of the entire Army. Challenges include a wide variety of diverse concerns from budgetary and manpower constraints, to a more elusive enemy that is dispersed across terrain and technological platforms, and the move to increased engagement across military branches and partner nations. To develop in terms of readiness and agility requires the entire U.S. Army be in a constant state of learning at all organizational echelons. Ultimately, an organization that exists in an environment permeated with constant change must be willing to transform itself rapidly by promoting continuous learning of its members.

The U.S. Army's interest in becoming an LO demonstrates that the Army understands the critical role of learning in promoting agility and innovation. However, prior to this research, no definition of a U.S. Army LO existed and the components that would comprise a U.S. Army specific LO were unknown. As part of this research we sought to address these needs by developing a definition and a framework that describes the components of a U.S. Army LO (i.e., via the ALOMM). Through rigorous qualitative research we were able to examine U.S. Army LOs in depth based on the experiences of Senior U.S. Army leaders and SMEs. While qualitative research has many limitations (e.g., potential for subjective interpretation), it has many benefits as well (e.g., rich understanding of phenomena). The research team employed multiple data collection methods to overcome these limitations including a literature review, interviews with Senior U.S. Army leaders, an SME workshop, and a feedback survey. As a result, U.S. Army organizations now know what U.S. Army LOs do and what they look like, and are better positioned to align their organizational behaviors with those outlined in the ALOMM. However, there is still a critical need unaddressed by the present research which is the ability of leaders to be able to assess their organizations on a continuum of learning in accordance with the ALOMM. Future research should address this need through the development of valid and reliable, context-specific measures of U.S. Army LOs.

In order to permeate the message of building LOs that align with the ALOMM throughout the U.S. Army enterprise, U.S. Army leaders must recognize and communicate that becoming an LO is not about simply adopting a new program and enforcing new mandates. Instead, building LOs in the U.S. Army will be a true transformation that will result in new learning behaviors adopted by every level of the organization. These behaviors will include knowledge creating, sharing and integration; increased synchronicity in how jobs are performed; improved communications vertically (both up and down the chain), horizontally (peer level within and across units), and diagonally (across units and chains); and better alignment of capabilities in support of the U.S. Army's diverse mission sets. As with any transformation, becoming an LO will require time as leaders work with members of their units to identify stovepipes, backlogs, and process inefficiencies. However, the end result of this investment is an organization better equipped to develop rapid and effective responses to changing conditions; a ready, adaptive, and agile U.S. Army for the future.

References

- Cronin, C. B., Morath, R., Plunkett, K., Paddock, A., Cutshall, C., & Fein-Helfman, D. (2014). *Defining and Measuring the Maturity of a Learning Organization: Catalog of Research Supporting AMC's LOCMM*. Unpublished White Paper.
- Dixon, N. M. (1992). Organizational learning: A review of the literature with implications for HRD professionals. *Human Resource Development Quarterly*, 3(1), 29-49. <https://doi.org/10.1002/hrdq.3920030105>
- Dixon, S. E., Meyer, K. E., & Day, M. (2010). Stages of organizational transformation in transition economies: A dynamic capabilities approach. *Journal of Management Studies*, 47(3), 416-436. <https://doi.org/10.1111/j.1467-6486.2009.00856.x>
- Easterby-Smith, M., Crossan, M., & Nicolini, D. (2000). Organizational learning: Debates past, present and future. *Journal of Management Studies*, 37(6), 783-796. <https://doi.org/10.1111/1467-6486.00203>
- Garvin, D. A. (2003). *Learning in action: A guide to putting the learning organization to work*. Harvard Business Review Press.
- Garvin, D. A., Edmondson, A. C., & Gino, F. (2008). Is yours a learning organization? *Harvard Business Review*, 86(3), 109.
- Ghaffari, S., Burgoyne, J., Shah, I., & Nazri, M. (2017). Perceptions of learning organization dimensions among non-academic employees of top public universities in Malaysia. *Australian Journal of Basic and Applied Sciences*, 11(1), 107-116.
- Goh, S. C. (1998). Toward a learning organization: The strategic building blocks. *Advanced Management Journal*, 63(2), 15-22.
- Headquarters Department of the Army. (2012a). *ADRP 7-0 Training Units and Developing Leaders*. Retrieved October 21, 2020, from https://armypubs.army.mil/epubs/DR_pubs/DR_a/pdf/web/adp7_0.pdf.
- Headquarters Department of the Army. (2012b). *ADP 1 The Army*. Retrieved October 21, 2020, from https://armypubs.army.mil/epubs/DR_pubs/DR_a/pdf/web/ARN18008_ADP-1%20FINAL%20WEB.pdf.
- Headquarters Department of the Army. (2012c). *ADP 5-0 The Operations Process*. Retrieved October 21, 2020, from https://armypubs.army.mil/epubs/DR_pubs/DR_a/pdf/web/ARN20305_ADP%205-0%20FINAL%20WEB.pdf.

- Headquarters Department of the Army. (2012d). *ADP 6-0 Mission Command*. Retrieved October 21, 2020, from https://armypubs.army.mil/epubs/DR_pubs/DR_a/pdf/web/ARN19189_ADP_6-0_FINAL_WEB_v2.pdf.
- Headquarters Department of the Army. (2012e). *ADP 6-22 Army Leadership*. Retrieved October 21, 2020, from https://armypubs.army.mil/epubs/DR_pubs/DR_a/pdf/web/ARN20039_ADP%206-22%20C1%20FINAL%20WEB.pdf
- Headquarters Department of the Army. (2015a). *FM 6-22 Leadership Development*. Retrieved October 21, 2020, from https://armypubs.army.mil/epubs/DR_pubs/DR_a/pdf/web/fm6_22.pdf
- Headquarters Department of the Army. (2015b). *NCO 2020 Strategy: NCOs Operating in a Complex World*. United States Army Training and Doctrine Command. Retrieved October 21, 2020, from <http://www.tradoc.army.mil/FrontPageContent/Docs/NCO2020.pdf>.
- Headquarters Department of the Army. (2015c). *The Army vision: Strategic advantage in a complex world* (pp. 1-13). Retrieved October 21, 2020 from https://www.army.mil/e2/rv5_downloads/info/references/the_army_vision.pdf.
- Headquarters Department of the Army. (2015d). *The Army University White Paper: Educating Leaders To Win in a Complex World*. Retrieved October 21, 2020 from <https://www.army.mil/e2/c/downloads/402809.pdf>
- Headquarters Department of the Army. (2017a). *Army Business Strategy 2017-2021*. Retrieved October 21, 2020, from https://www.army.mil/standto/archive_2016-07-14
- Headquarters Department of the Army. (2017b). *Army Innovation Strategy 2017-2021*. Retrieved October 21, 2020, from <https://www.army.mil/e2/c/downloads/493916.pdf>
- Jacobs, M. (2007). Personal mastery: The first discipline of learning organizations. *Vermont Business Magazine*.
- Larsen, K., McInerney, C., Nyquist, C., Santos, A., & Silsbee, D. (2013). *Learning Organizations*. Retrieved November 5, 2018, from <http://leeds-faculty.colorado.edu/larsenk/learnorg/index.html>.
- Mahapatra, P., & Kar, A. K. (2016). From organizational learning to the learning organization: A paradigm shift. *International Journal of Advance Research and Innovative Ideas in Education*, 2(6), 1173-1182.
- Marsick, V. J., & Watkins, K. E. (2003). Demonstrating the value of an organizations learning culture: The dimensions of the learning organization questionnaire. *Advances in*

Developing Human Resources, 5(2), 132-151.
<https://doi.org/10.1177/1523422303005002002>

Marquardt, M. J. (1996). *Building the Learning Organization: A systems Approach to Quantum Improvement and Global Success*. McGraw-Hill.

Örtenblad, A. (2015). Towards increased relevance: Context-adapted models of the learning organization. *The Learning Organization*, 22(3), 163-181. <https://doi.org/10.1108/TLO-06-2014-0027>

Pedler, M., Burgoyne, J. G., & Boydell, T. (1996). *The learning company: A strategy for sustainable development*. McGraw-Hill.

Schein, E. H. (2010). *Organizational culture and leadership* (4th ed.). John Wiley & Sons.

Senge, Peter M. (1990). *The fifth discipline: The art and practice of the learning organization*. New York: Doubleday/Currency.

Senge, P., Kleiner, A., Roberts, C., Ross, R., & Smith, B. J. (1994). *The Fifth Discipline Fieldbook: Strategies and Tools for Building a Learning Organization*. Doubleday.

Serrat, O. (2017). Building a Learning Organization. *Knowledge Solutions*, 57-67.
https://doi.org/10.1007/978-981-10-0983-9_11

Stothard, C. (2014). *The Army learning organisation questionnaire: Developing a valid and reliable measure of learning organisation characteristics*. (DSTO-TN-1325). Defense Science and Technology Organisation.

Templeton, G. F., Lewis, B. R., & Snyder, C. A. (2002). Development of a measure for the organizational learning construct. *Journal of Management Information Systems*, 19(2), 175-218. <https://doi.org/10.1080/07421222.2002.11045727>

Training and Doctrine Command. (2017a). *Multi-Domain Battle: Evolution of Combined Arms for the 21st Century*. Retrieved November 18, 2020 from https://www.tradoc.army.mil/Portals/14/Documents/MDB_Evolutionfor21st.pdf

Training and Doctrine Command. (2017b). *TRADOC Pamphlet 525-8-2, The U.S. Army Learning Concept for Training and Education*. Retrieved October 21, 2020, from <http://www.tradoc.army.mil/tpubs/pams/tp525-8-2.pdf>. Fort Eustis, VA.

U.S. Army Capabilities Integration Center. (2014). *Army Vision - Force 2025* (pp 1-9). Retrieved November 18, 2020, from https://ssilrc.army.mil/wp-content/uploads/2018/08/USArmy_WhitePaper_Army-Vision-Force-2025_23JAN2014.pdf#:~:text=Army%20Vision%20-%20Force%202025%203%20innovative%20combined,internally%20and%20as%20part%20of%20the%20joint%20force

U.S. Army Training and Doctrine Command. (2017). *The U.S. Army Learning Concept for Training and Education*. Retrieved October 21, 2020, from <http://www.tradoc.army.mil/tpubs/pams/tp525-8-2.pdf>

Watkins, K. E., & Marsick, V. J. (1993). *Sculpting the learning organization: Lessons in the art and science of systemic change*. Jossey-Bass Inc.

Williams, J. D. (2007). *Is the U.S. Army a Learning Organization?* U.S. Army War College.

Appendix A: Final Literature Sources and all Identified Themes

Source	Associated Theme(s)
Dixon, N. M. (1992). Organizational Learning: A Review of the Literature.	<ul style="list-style-type: none"> • Inquiry • Organizational systems • Knowledge management • Systemic Thinking/Sense-making • Dialogue/Communication
Dixon, S. E., Meyer, K. E., & Day, M. (2010). Stages of Organizational Transformation.	<ul style="list-style-type: none"> • Teamwork/Collaboration • Strategic Leadership/Empowering employees toward learning • Capability enhancement
Garvin, Edmondson & Gino (2008). Is yours a Learning Organization?	<ul style="list-style-type: none"> • Psychological Safety • Appreciation of Differences • Openness to new ideas • Time for reflection • Experimentation • Information collection • Analysis • Education and training • Information transfer
Goh, S. C. (1998). Toward a Learning Organization: The Strategic Building Blocks.	<ul style="list-style-type: none"> • Teamwork/Collaboration • Joint vision • Inquiry • Knowledge management • Empowerment
Jacobs, (2007). Personal mastery: The first discipline of learning organizations.	<ul style="list-style-type: none"> • Sense of purpose • Accurate assessment of current reality • Ability to use creative tension to inspire forward progress • View change as an opportunity • Deeply inquisitive • High priority on personal connections without losing individuality • Systemic thinkers
Larsen, McInerney, Nyquist, Santos, & Silsbee. (2013). Learning Organizations.	<ul style="list-style-type: none"> • Organizational design • Group/team design • Availability of material resources • Use of knowledge and skill to negotiate • Group effectiveness
Marquardt, M. J. (1996). Building the Learning Organization.	<ul style="list-style-type: none"> • Inquiry • Organizational systems • Knowledge management

<p>Marsick, V. J., & Watkins, K. E. (2003). Demonstrating the Value of an Organizations Learning Culture: The Dimensions of the Learning Organization Questionnaire.</p>	<ul style="list-style-type: none"> • Teamwork/Collaboration • Joint Vision • Inquiry • Organizational Systems • Strategic Leadership/Empowering employees toward learning • Systemic Thinking/Sense-making • Culture creation/Cultivation of learning
<p>Schein, E. H. (2010). Organizational Culture and Leadership.</p>	<ul style="list-style-type: none"> • Joint vision • Inquiry • Strategic Leadership/Empowering employees toward learning • Systemic Thinking/Sense-making • Culture creation/Cultivation of learning • Dialogue/Communication • Capability enhancement
<p>Senge, P. (1990). The Fifth Discipline.</p>	<ul style="list-style-type: none"> • Personal mastery • Mental models • Shared vision • Team learning • Systems thinking
<p>Serrat, O. (2017). Building a Learning Organization. Knowledge Solutions.</p>	<ul style="list-style-type: none"> • Joint vision • Organizational systems • Knowledge management • Capability enhancement
<p>Templeton, G. F., Lewis, B. R., & Snyder, C. A. (2002). Development of a Measure for the Organizational Learning Construct.</p>	<ul style="list-style-type: none"> • Teamwork/Collaboration • Inquiry • Organizational systems • Knowledge management • Strategic Leadership/Empowering employees toward learning • Culture creation/Cultivation of learning • Dialogue/Communication
<p>Williams, J. D. (2007). Is the U.S. Army a Learning Organization?</p>	<ul style="list-style-type: none"> • Teamwork/Collaboration • Joint Vision • Systemic Thinking/Sense-making • Capability enhancement
<p>Yang, B., Watkins, K. E., & Marsick, V. (2004). The Construct of the Learning Organization.</p>	<ul style="list-style-type: none"> • Teamwork/Collaboration • Inquiry • Organizational systems • Strategic leadership • Systemic Thinking/Sense-making • Culture creation/Cultivation of learning

Appendix B: List of Army Publications Reviewed

ADP 1: The Army (Headquarters Department of the Army [DA], 2012b).

ADP 5-0: The Operations Process (DA, 2012c).

ADP 6-0: Mission Command (DA, 2012d).

ADRP 6-22: Army Leadership (DA, 2012e).

ADRP 7-0: Training Units and Developing Leaders (DA, 2012a).

Army Business Strategy 2017-2021 (DA, 2017b).

Army Innovation Strategy 2017-2021 (DA, 2017c).

Army Vision - Force 2025 (U.S. Army Capabilities Integration Center, 2014).

Educating Leaders to Win in a Complex World (DA, 2015d).

FM 6-22: Leadership Development (DA, 2015a).

Multi-Domain Battle: Evolution of Combined Arms for the 21st Century (Training and Doctrine Command [TRADOC], 2017a).

NCO 2020 Strategy: NCOs Operating in a Complex World. (DA, 2015b).

The Army Vision: Strategic Advantage in a Complex World (DA, 2015c).

The U.S. Army Learning Concept for Training and Education (TRADOC, 2017).

Appendix C: ALOMM Interview Protocol

U.S. Army Learning Org Maturity Model - Draft Interview Protocol

Section I: General Questions Prior to Reviewing/Commenting on Draft Model

First, I would like to discuss how we have been conceptualizing a Learning Organization (LO) and hear about your thoughts on learning organizations specific to the U.S. Army. In this effort, we have been defining a learning organization as an organization that continuously orients itself in a future-focused posture towards the processes of acquiring skills and knowledge to successfully adapt to ever-changing demands and requirements. We envision that organizations either are or are not learning organizations, and if they are a learning organization there is a continuum of maturity that organizations may move along over time.

- 1. Given your experience, do you feel ARI's conceptualization of a LO is in line with the U.S. Army's conceptualization? Does the ARI conceptualization align with your personal conceptualization of a Learning Organization?**

- a. Is there anything you would add?*

- b. Is it clear and understandable for all echelons?*

- 2. Why do you believe is it important for the Army to establish itself as a learning organization?**

In this research we are also working to develop an institutional-level model of an Army learning organization, and to identify characteristics of maturity for each echelon of the organization. Your insight and experience will help us with the further development of this model. Once fully developed, the Army Learning Organization Maturity Model will inform the construction of an assessment for U.S. Army leaders to determine their organization's maturity as a learning organization and to receive feedback on how to maintain and/or increase their maturity level.

- 3. If you have observed organizations that you would describe as learning organizations, what was it about these particular organizations that indicated to you that they were learning organizations?**

- a. Were these indicators observed in a particular context?*

- b. Were these indicators group behaviors? Organizational polices? Leader practices? Or something else?*

- c. Do these indicators look different at different levels of the organization or among different types of organizations?*

- 4. Can you think of organizations in the U.S. Army you would not characterize as learning organizations and what is it about those organizations that indicate they are not learning organizations?**

- 5. Thinking of organizations you would characterize as learning organizations, how would you distinguish between highly mature and less mature learning organizations?**

- a. What do differentiating characteristics look like, or how do they manifest in a highly mature learning organization vs. a less mature learning organization in the US Army?*

- i. Do these things vary by organizational level or type?*
 - b. How can we track, measure, or assess these?*
 - c. How can they be facilitated or enhanced?*
- 6. What are the primary challenges or barriers for Army organizations to become highly mature learning organizations?**
- 7. Is there a particular organizational level, or even particular types of organizations, where you think a LO maturity model and assessment could be implemented to have the most impact on the overall U.S. Army and its goal to become a learning organization?**
- 8. How do you see leaders using an assessment of their learning organization maturity?**
- 9. Considering your unique perspective and insight as a senior U.S. Army leader, is there anything else you would like to share on the topic of learning organizations in the U.S. Army?**
 - a. Is there anything we may have missed or overlooked?*

Closing Statement

Thank you for participating in this interview today. Your input has been highly valuable.

Before we close the interview, do you have any final thoughts/feedback as we continue our work generating the ALOMM?

Appendix D: ALOMM Interview Thematic Analysis Summary

Theme Code		Interviews	Summary	Analysis
1a	Open and candid communication throughout	2, 3, 5	Members from the Private level up feel comfortable and confident in speaking up and sharing their ideas. Everybody's ideas are taken into consideration by leadership, and intellectual disagreements are seen as positive. There is a free flow of ideas and questions are welcomed and encouraged.	<ul style="list-style-type: none"> • Strongly supported by interviews • Consistent throughout almost all interviews² • Findings support ALOMM (Ex: D1A2, D4A2)
1b	Critical thinking is the default	2, 3, 4, 5	Members of the organization at all levels are empowered reflect, inquire, and come forward with new ideas, with the right boundaries. They are encouraged to solve problems in innovative ways to bring the organization success.	<ul style="list-style-type: none"> • Strongly supported by interviews • Consistent throughout all interviews
1c	Organization is oriented on the future	3, 4, 5	Ideas and changes do not only support current situations or problems, but also anticipate potential future requirements. The organization is proactive based on past experiences and lessons learned.	<ul style="list-style-type: none"> • Moderately supported by interviews • Consistent throughout almost all interviews • Findings support ALOMM (Ex: D2)
1d	Organizational members have a shared understanding (goals, intent, plans, etc.)	2, 5	Members of the organization have a consistent understanding of the mission and goals because they are openly communicated and discussed. With this common understanding, individuals can be innovative in how they reach the goals/accomplish the mission.	<ul style="list-style-type: none"> • Strongly supported by interviews • Inconsistent across interviews • Findings support ALOMM (Ex: D2A2, D4A1)

² Consistency refers to the language and context used to describe the theme and indicates whether the interviewees use term(s) in the same manner and context or not.

Theme Code		Interviews	Summary	Analysis
2a	Members collaborate effectively to solve problems	2, 3, 4, 5	The atmosphere in the organization allows for individuals to share their ideas and work together to solve an organizational problem or approach a challenge. Teamwork and cohesion is key to learning and growing.	<ul style="list-style-type: none"> • Strongly supported by interviews • Consistent throughout all interviews • Findings support ALOMM (Ex: D1A1, D4A1, D5A2)
2b	Boundary spanning: Learn from outside the organization	4, 5	Organizations recognize they must look outside of their own organization to seek out new knowledge. Examining outside ideas develops creativity and innovation, and keeps the organization from falling behind its adversaries.	<ul style="list-style-type: none"> • Moderately supported by interviews • Inconsistent throughout interviews • Findings support ALOMM (Ex: D4A3)
3a	Learning is formalized (i.e., policy, process, strategy, etc.)	2, 3, 5	Established processes are critical to create structure and stability across the organization. Additionally, results should be evaluated, process improvement should be utilized, and leadership should develop a strategic plan to keep consistency despite leadership turnover.	<ul style="list-style-type: none"> • Strongly supported by interviews • Consistent throughout almost all interviews • Findings support ALOMM (Ex: D5A1)
3b	Iterative/Continuous learning/Improvement is default mode of operations	2, 3, 4, 5	Ideas are constantly reviewed and revamped to improve organizational results. Changing your mind when merited is seen as positive and part of the learning process. Learning never stops.	<ul style="list-style-type: none"> • Moderately supported by interviews • Consistent throughout all interviews • Findings support ALOMM (Ex: D1A3, D3)

Theme Code		Interviews	Summary	Analysis
3c	Knowledge is managed	2, 5	Processes and practices are in place to store and share knowledge so that information is not lost due to turnover and so that organizational members can learn from each other.	<ul style="list-style-type: none"> • Weakly supported or implied by interviews • Inconsistent throughout interviews • Findings support ALOMM (Ex: D5A1, D5A2, D5A3)
3d	Resources dedicated to learning	3, 4, 5	The organization must dedicate resources to learning to allow individuals to dedicate time to new ideas and being innovative.	<ul style="list-style-type: none"> • Weakly supported or implied by interviews • Inconsistent throughout interviews • Findings support ALOMM (Ex: D1A4)
3e	Learning is incentivized	2, 5	Ideas, accomplishments, learning from mistakes and taking imitative/being innovative are rewarded within the organization. It is also important to reward at the group level and not just at the individual level to promote group growth rather than just individual outcomes.	<ul style="list-style-type: none"> • Weakly supported by interviews • Inconsistent throughout interviews • Findings support ALOMM (Ex: D1A2, D3A4)
4a	Foundation of trust exists in organization (candor, motivation, prudent risks)	2, 3	In order for open communication and true collaboration to happen, individuals have to feel that there is trust within the organization. An organization built on trust allows members to feel comfortable sharing ideas, being innovative, and developing creative approaches to problems.	<ul style="list-style-type: none"> • Extensively supported by interviews • Inconsistent throughout interviews • Findings not currently part of ALOMM

Theme Code		Interviews	Summary	Analysis
4b	Organizational members are empowered (to innovate/take initiative)	2, 3, 4, 5	Leadership encourages learning, taking risks, and exploring new ideas. Additionally, opportunities are provided to think innovatively and take initiative.	<ul style="list-style-type: none"> • Extensively supported by interviews • Consistent throughout all interviews • Findings support ALOMM (Ex: D3A1, D3A3) • Strongly supported by interviews • Consistent throughout almost all interviews • Findings support ALOMM (Ex: D3A4) • Weakly supported by interviews • Consistent throughout almost all interviews • Findings not currently part of ALOMM
4c	Mistakes treated as learning opportunities	2, 3, 4	When individuals turn mistakes into lessons learned, they are not punished but rather rewarded. Failure allows individuals to learn, grow, and try new things.	<ul style="list-style-type: none"> • Weakly supported • Inconsistent throughout interviews
5a	Organization is more agile/adaptable	2, 3, 5	Being a learning organization creates agility and teaches individuals how to adapt to changes and problems quickly. This is necessary to keep up with adversaries.	<ul style="list-style-type: none"> • Weakly supported • Inconsistent throughout interviews
5b	LOs have enhanced operational/mission outcomes	2	Many interviews implied overall that learning organizations have enhanced outcomes but very few made this link explicit. Those that did focused on the ability to rapidly adapt and thrive in uncertain and dynamic environments.	<ul style="list-style-type: none"> • Weakly supported • Inconsistent throughout interviews
6a	Burden of requirements (too busy to think)	2	The multitude of mandatory requirements the Army levies on its people takes time and resources away from individuals that could be dedicated to learning.	<ul style="list-style-type: none"> • Weakly supported by interviews • Findings support ALOMM (Ex: D1A4)

Theme Code		Interviews	Summary	Analysis
6b	Compliance/Metrics focused (what can be measured gets emphasized)	2, 3, 5	Because the Army is so compliance-based and metrics-driven, outcomes are overshadowed by items that can be easily measured or that look good on paper.	<ul style="list-style-type: none"> • Strongly supported by interviews • Consistent throughout almost all interviews • Findings not currently part of ALOMM
6c	Funding/Resources limited (overall in the organization, not just for learning)	4, 5	Time, money, and resources within the Army are limited, restricting what the organization is able to dedicate to learning.	<ul style="list-style-type: none"> • Weakly supported by interviews • Inconsistent throughout interviews • Findings support ALOMM (Ex: D1A4)
6d	Turnover/Lost knowledge (leadership and experts)	5	Because there is constant leadership turnover in the Army, it puts a limitation on the organization's ability to become an LO. This results in knowledge and information lost when these people leave the organization because knowledge is not effectively managed.	<ul style="list-style-type: none"> • Weakly supported by interviews • Findings support ALOMM (Ex: D5A1, D5A2, D5A3)
6e	Obsolete/Inflexible systems and processes	3	Processes in the Army are rigid, outdated, and are not designed for learning to occur. Flexible systems and processes are critical to create structure and stability across the organization.	<ul style="list-style-type: none"> • Weakly supported by interviews • Findings support ALOMM (Ex: D5A1)
6f	In-garrison environment more challenging (more rules/requirements, risk aversion, less desire to innovate, less funding)	2, 3, 4	When deployed, individuals are able to take initiative and be innovative in order to accomplish tasks without the burden of mandatory requirements that are overwhelming in the garrison environment.	<ul style="list-style-type: none"> • Strongly supported by interviews • Consistent throughout almost all interviews • Findings not currently part of ALOMM

Theme Code		Interviews	Summary	Analysis
7	Role of the leader	2, 3, 4	Leadership develops the atmosphere of the organization and must model the desired learning behavior and empower individuals to buy-in to being an LO. Leaders must be open-minded, listen to ideas of all individuals, and allow for innovative ideas and behaviors to create trust within the organization.	<ul style="list-style-type: none"> • Strongly supported by interviews • Consistent throughout almost all interviews • Findings support ALOMM (Ex: D1A4, D3A1)

Note: **Theme Code** refers to the code assigned to the interview data (a, b, c...), and the final theme it was determined to fall under: 1=Critical thinking, 2=Members collaborate, 3=Learning is continuous, 4=All members are empowered, 5=Outcomes of LOs, 6=Barriers of LOs, 7=Leader influence. **Interviews** = each interview with comments that discussed the given code (N = 5). **Summary** = a summarization of comments from the interviews identified in the previous column. **Analysis** = Levels of support in ascending order are: weakly=<0, moderately=<1.0, strongly=<2.0, extensively=3.0. This only refers to support from the interviews and does not imply the concepts (identified in the literature) are unimportant.