Reengineering Army Education for Adult Learners

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On 7 July 2015, the U.S. Army established the Army University as a single institution for managing, resourcing, and integrating the efforts of seventy separate U.S. Army Training and Doctrine Command (TRADOC) internal school programs as well as synchronizing the instruction of more than one hundred additional TRADOC institutions.[1] These institutions employ a blend of training and education to ensure that soldiers are properly prepared to perform duties within the profession of arms.

Achieving the correct mix of training and education within the framework of professional military education has been the subject of some debate.[2] This debate often results in unnecessary calls for change in approaches to military education. Additionally, there is not a clear approach to military education based upon the requirements of adult learning. While many of the TRADOC schools and institutions are basic-level schools designed to educate and train new recruits and officers, a large portion of the Army's educational structure is devoted to advanced-level schooling populated by adult learners. Based upon experiential and motivational factors, adult learners learn differently than non-adult learners. Therefore, they should be educated, trained, and instructed using educational approaches that account for their greater experience and maturity. Finally, there are inefficiencies in the way that much of the Army's curriculum is imparted, requiring a one-size-fits-all model rather than tailoring instruction to the individual learners where possible.

Competency-based education (CBE) offers a framework for such tailoring, allowing learners to seek out the information they need and opt out of areas in which they are already competent. Therefore, to optimize learning in its advanced schools, Army educators must get past the needless debate about education versus training, adopt a common educational model for adults, properly set the conditions for adult learning in their institutions, and leverage the strengths of CBE.

Learning, Education, Training, and Instruction

Within professional military education, there is a debate concerning whether Army students are receiving education or training. This debate often slows curriculum design and development as educators attempt to eradicate evidence of training and robe it in

the trappings of education. In many advanced schools, training is now a dirty word that implies an endeavor that is unworthy of their efforts. However, education and training are intertwined and are not mutually exclusive. While it may be possible to educate without training, one cannot train without educating.

Education and learning are similarly intertwined. While one may learn without formal education, there is no point to education without learning. It is important to understand the differences and relationships between the concepts of learning, education, instruction, and training in order to better understand the nature of how adults learn and the practice of educating adults.

Learning is a complex concept with evolving definitions. Learning is a process of controlling, shaping, and changing behavior as well as a process of developing competencies; it is "a process of gaining knowledge and expertise."[3] Similarly, education has elusive definitions, particularly as related to learning. When looking at many different definitions of education, a common meaning that emerges is that education is a process for learning.[4] Thus, learning and education are intertwined; their primary difference is their orientation.

The orientation of learning is mainly internal to the learner, focused on how the learner gains knowledge and expertise. Education is largely external, examining the ways that information and concepts are presented to or gathered by the learner. This external process of education leads to an internal process of learning.

Education is concept-based, explaining why and how things work together.[5] It provides the big picture, explaining the art, science, and theory of a phenomenon. Education allows people to examine a problem or issue and devise a different approach. An education in execution and synchronization of indirect fires might cover combined arms warfare and logistics resupply as well as interior and exterior ballistics theory. Education is what allowed leaders of indirect-fire units in World War II to recognize that the complexities posed by massive amounts of artillery on the battlefield required centralized fire direction centers to process and compute the myriad requests for fires.

Education consists of four integrated components: initiation, instruction, training, and induction.[6] Initiation familiarizes the learner with professional values and cultural norms. Instruction is learner-centered, focused on providing the learners with the information they need to think critically and use judgment in problem solving and complex situations.

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Training consists of imparting the skills and procedures required for mastery of a task or competency. It has an external orientation focused on the needs of the profession or vocation.[7] Training results in a learner who is capable of performing specific tasks to a standard specified by the profession or vocation.

Induction puts it all together, allowing the learner to combine their acquired skills, knowledge, and ethical principles and apply them to a unique problem or situation. With respect to the indirect-fire example used earlier, instruction and training gives learners the foundation and skills to integrate fires assets, determine the correct mix of ammunition types, and calculate ballistic solutions. It was the combination of instruction and training that allowed the fire direction centers of World War I to rapidly compute the ballistic solutions required to effectively mass fires. Education provides a foundation for understanding, while training provides the skills to take action and complete tasks.

We should not think of learning in the military in terms of education or training. Rather, we should understand that they both exist simultaneously with instruction and training as subsets of education. If you are instructing and/or training, you are also educating. Both education and training are requirements of advanced Army schooling; one explains why we do something (theory), and the other explains how (process). The adult learners in Army institutions require some measure of both to succeed in the operational force.

Adult Learning

Adult learners are a unique segment of the student population and comprise a very large portion of the Army's learners. While all soldiers are considered adults, not all soldiers are adult learners. An adult learner is generally considered a student aged twenty-five or older.[8] Adult learners populate almost every advanced learning school in the Army, from the Advanced Noncommissioned Officer Course to the Captains Career Courses to the Command and General Staff Officers Course and the U.S. Army War College. These soldiers, based upon greater experience and maturity, learn differently than younger learners, and it is important to properly set learning conditions in order to motivate these adult learners.[9]

Many of the principles associated with adult learning are derived from the theory of andragogy, a learning theory first proposed in 1968 by Malcolm Knowles.[10] Andragogy asserts that adults, defined as independent, responsible, self-directed individuals, learn differently than non-adults. The theory is based upon six underlying assumptions that differentiate it from pedagogical learning: (1) adults need to know why they need to learn something, (2) adult learners need to be self-directed, (3) adults draw heavily upon previous experience when learning, (4) adults are ready to learn in order to cope with real-life situations, (5) adult learning is task-centered or problem-centered in order

to deal with life situations, and (6) adults are motivated to learn.[11] These assumptions explain the internal characteristics of adult learners. Knowles redirected the focus of andragogy onto educators by proposing four principles that could be applied to adult learning: (1) adults need to be involved in the planning and assessment of their instruction, (2) experience forms the basis of adult learning, (3) adults are most interested in learning that has clear relevance or impact on their job, and (4) adult learning is problem-centered rather than content-oriented.[12] Thus, andragogy is a learner-focused theory in which learners are internally motivated to construct knowledge by drawing upon previous experience in order to solve real-world issues.

Andragogy is not a perfect theory and has its criticisms. It does not completely explain how adults learn, nor does it fully allow for the context of learning that shapes how each adult is unique and learns differently.[13] The theory tends to explain what the adult learner may be like, rather than how adults actually learn. This tends to make andragogy a list of principles rather than a learning theory.[14] Despite these shortcomings, andragogy provides a solid framework for designing and executing adult education in the Army.

To encourage the sharing of experiences in an environment where students achieve understanding of phenomena while solving relevant, complex problems, it is important to use an appropriate learning model. The Experiential Learning Model (ELM), in use at the Army's Command and General Staff College, provides a framework that supports adult learning. The model is based upon Kolb's Experiential Learning Cycle in which learners create knowledge by grasping experience and then transforming it into actionable information. Kolb models the cognitive processes of learning through a four-stage cycle of learning that consists of concrete experience, reflective observation, abstract conceptualization, and active experimentation.[15]

The concrete experience introduces a new experience or reinterprets an existing one. During reflective observation, the learners consider similarities and differences between the new experience and their own experiences. In abstract conceptualization, the learners form concepts, analyze them, and form general conclusions related to these concepts; they learn from the experience. Finally, during active experimentation, the learners apply their conclusions to a different situation creating a new experience. By touching on all four of the stages of the learning cycle, learners construct knowledge by experiencing, reflecting, thinking, and acting.

Kolb's cycle provides an internal sequence of stages describing how adults transform experience to create knowledge and learn. Kolb's internal learning process needs to be supported by an external teaching process that leads the adult student through these stages of learning. The ELM, which is actually an educational or teaching model, provides a five-step framework that guides adult learners through Kolb's cycle.[16] The ELM touches on the four stages of Kolb's model by progressing through five steps: concrete experience, publish and process, generalize new information, develop, and apply. The first step, *concrete experience*, introduces the students to a new situation that causes them to consider or be a participant in an event. This

induces Kolb's first stage by introducing the student to a situation or event. In the second step, *publish and process*, students discuss the situation or event and attempt to dissect what happened as well as understand the significance of the experience. Often students will call upon past experience when analyzing what happened. In the third step, *generalize new information*, the students are introduced to new learning content, which is related to the concrete experience. This is followed by a discussion of how this new information is relevant and might be applied by them in future situations in the *develop* step. Finally the students participate in a practical application or exercise that allows them to *apply* their newfound knowledge.

The ELM is based upon Kolb's Experiential Learning Cycle, which relies heavily upon the previous experience of the learner. Critics of Kolb's cycle point to experience as an interpreted stimulus and not an actual real-world occurrence that the learner must encounter. In Kolb's model, experience is phenomenon that can be easily identified and named, but other educational theorists view experience as a felt encounter or a way of knowing about a phenomenon. This expanded theoretical perspective places greater emphasis on understanding the felt sense of others' experiences rather than reflecting on one's own experiences.[17] The ELM attempts to mitigate this difference in perspectives through the sharing of experiences during the publish and process step. Ultimately, the five-step approach of the ELM leads students through Kolb's cycle, allowing them to create knowledge through the creation and sharing of experience coupled with analysis and collaborative application.

Facilitating Adult Learning

Not everyone learns in the same manner, and motivating students to learn—even Army students—can be problematic based upon the individual nature of learning. While the concept of self-directed learning may imply that adults require little, if any, direction and guidance from a teacher, the reality is much different. Because adults have different levels of maturity and self-direction, there is no "one-size-fits-all" solution to their education. Some may be very independent and able to direct their own learning, while others may be very dependent upon the teacher for structure and guidance.[18]

Adult learners exist on a continuum with varying levels of self-direction. The teacher serves as a guide to students providing a means of structuring their learning. This process expands the boundaries of traditional, content-based learning, by allowing learners to establish their own direction based upon their potential.[19] Self-directed learning is not wholly internal to the student; it is a combination of student autonomy coupled with teacher guidance and resourcing.

The role of the teacher in adult learning is to guide students through a process of learning that provides them with the procedures and resources for acquiring knowledge and skills.[20] In establishing a process that guides students through learning, it is

important that the teacher set the conditions to motivate students. Adults are both internally and externally motivated to learn.[21] While internal pressures provide the most motivation, external motivators in the form of reward or support can also be important.[22] Thus, as part of the establishing an adult learning process, instructors can create conditions and remove barriers that facilitate adult learning. Instructors can motivate adults to learn by establishing relevancy, facilitating student control over learning, and creating an adult learning environment.

Relevancy

Course subject matter and individual situation both influence the relevancy of the adult learning experience. While the focus of teaching adults is based on providing a process rather than content, the content and subject matter play an important role from the learner's standpoint.[23] Student perceptions of content relevancy are an important aspect of student motivation noted in online learning.[24] Relevancy is directly linked to a principal andragogical assumption concerning a readiness to learn, in which learners are prepared to learn those things that help them cope with real-life tasks.[25] Adult learners have little patience for activities that they see as irrelevant to their situation.[26] Adult learners desire a personal payoff from their learning and are motivated by the potential to improve their employability skills.[27] Thus, soldiers who are adult learners are motivated to learn when they understand that the skills they are developing will directly lead to success in their future jobs.

The relevancy of learning to one's own life situation is considered one of the most crucial motivational factors for adult learners and a key factor shown to affect retention in master's level online courses.[28] Relevancy of material can also be established outside of real-life application, particularly if it is an essential part of career progression or clearly linked to some other aspect of their education.[29]

There are a number of ways that instructors can increase the relevancy of learning in the adult classroom and increase student motivation to learn. One of the simplest ways is to prepare the students for learning by explaining the relevance of the learning and, if necessary, "convince learners of the value of the new learning."[30] This can be done by having students point out the potential payoffs of the learning or the applicability to real-life tasks and situations. Relevancy can also be established through learning activities that are clearly tied to real-life situations. This can be done through the use of authentic assessments in case-based or situated instructional modules such as teaching cases or planning exercises.[31] Linking relevancy to graduation requirements is an obvious technique that the instructor can employ. Most importantly, establishing relevancy to students requires that the instructor understands the students' backgrounds, capabilities, and goals. Without understanding their perspectives and directions, establishing relevancy can be extremely challenging.

Facilitating Student Control

An underlying assumption about adult learners is that they are self-directed to learn. Adults also have the need to independently organize their learning around their life experiences and problems.[32] As self-directed learners, adults desire some level of autonomy over their learning experience as well as shared ownership of the outcomes.[33] Learner control, including control over topics, sequencing, pacing, and access to supporting resources, has been shown to be a major factor affecting student motivation.[34] Learner control over the acquisition of knowledge as well as the process for acquiring it is an important aspect of self-directed learning and strongly tied to motivation.[35] Thus, adults desire some level of control over their access to learning resources, the learning process, the learning objectives, and the process for evaluating whether the objectives have been met.

There are a variety of ways that the instructor can support self-directed learning and facilitate student control over learning. One method of facilitating some level of student control over learning is through the practice of contract learning in which the learner and instructor agree on what will be learned, how it will be learned, and how the learning will be measured.[36] Knowles singled out contract learning as the "single most potent tool" in adult education.[37] While this practice is administratively intensive, it clearly supports the principles of andragogy and self-directed learning. Control over pace and timing of requirements is also very important to adult learners. Instructors should allow some flexibility in due dates and deadlines but also recognize the need for pace and rigor to overcome potential student inertia and procrastination.[38] Offering students choices in their requirements also facilitates student control. Allowing them to choose between project topics or allowing some latitude in picking their own essay topics can motivate them. Giving adults some level of control over their learning motivates them and expands their inquiry and learning.

Establishing an Adult Learning Environment

Special attention should be taken when creating an adult learning environment. Studies have shown that the climate of the learning environment is a major factor in the motivation and retention of adult learners.[39] Knowles talks of establishing an "atmosphere of adultness" within the classroom climate.[40] Creating the right learning environment for adults involves the proper presentation and organization of materials, an emphasis on problem-based learning activities, and a framework for teaching that supports collaboration and leverages student experience.

Organization of the classroom and the materials contained within it should be based upon the learners using it. Instructors should try to create an informal classroom setting where no single seat dominates the room. The classroom should be

arranged in a manner that supports discussion with students seated so that they can face one another. Since adults learn best when they apply their learning to real-life situations, their learning activities should have clear links to real-life problems and allow them to apply their experiences.

Instructors should encourage such activities in discussions and assessed requirements. Collaboration among students is also an important component of adult learning. By first reflecting on their own experiences and then sharing experiences with others, adults are able to solve problems and learn collaboratively.[41] Employing collaborative learning activities allows for exchange of experiences among adult learners. Instructors must actively participate in discussions, provide in-depth and timely feedback, and guide group activities as part of establishing both a social and instructor presence in the classroom.

Leveraging Competency-Based Education

Understanding that adult learners are self-directed, draw heavily upon their experience, and prefer task-centered learning that deals with real-life situations, it makes sense to use a learning approach focused on these factors. CBE is a learning approach that is seeing a resurgence in popularity and offers promise in some aspects of Army adult education. Rising education costs coupled with the need to positively link learning outcomes with job readiness have created the need for an educational experience that prepares students to master the complex array of tasks they are expected to perform in the working environment.[42] CBE has been hailed as the approach to education that addresses these issues and delivers a student who is ready to perform in the workplace.

The principal difference between CBE and traditional education is how learning is measured. Traditional education is largely process-focused, concentrating on what and how learners are taught over a specific period of time, specifically the credit hour. CBE is learner-focused, centered on demonstrated mastery of competencies—the ability to solve problems, perform procedures, communicate effectively, or make sound decisions—without regard for how long it takes to achieve such mastery.[43]

CBE is not a new approach; it has been around for over fifty years, used primarily in medical education.[44] Based upon well-defined competencies and measurable learning objectives, CBE requires students to prove mastery of competencies by demonstrating not only knowledge but also the ability to apply that knowledge.[45]

A competency is the ability to do something successfully. Competencies are personal qualities or attributes that are required by the associated profession or job. These are expressed in terms of measurable behaviors based on integrating knowledge and skills.[46]

In order to measure knowledge and skills, competencies are further broken down into precise activities, or learning objectives, which describe student behaviors that must be demonstrated as well as the level or degree of demonstrated competence.[47]

CBE tends to use binary assessments—both the learning objectives and the associated competencies are either mastered or not mastered. Students continue working at competencies until they master all associated learning objectives.

Because CBE often draws upon experience, it is often linked to prior learning assessment (PLA), a term describing learning that a person has acquired outside a traditional academic environment.[48] The four generally accepted approaches to PLA include: national standardized exams such as advanced placement or college-level examination program tests, challenge exams for local courses, American Council on Education evaluations of corporate and military training, and individualized assessments such as portfolio-based assessments. PLA can be incorporated into CBE programs to further streamline the pathway to degree completion by granting course credit or competency credit for prior learning.

CBE is a good approach to use for adult learners because it allows learners to move at their own pace, leverage previous experience, and rapidly get credit for competencies as they demonstrate mastery of them. Additionally, students do not have to relearn material they already know. Because CBE is focused on demonstrating student mastery of competencies, it tends to be focused on the individual learner. This makes it well suited to demonstrating understanding of foundational principles or expert skills associated with one's military specialty or functional area. Thus, it is well suited for certifying an individual in his or her area of expertise.

Implementing CBE in any institution is not easy. Institutions of higher education have historically experienced sustaining innovations such as enhanced teaching technology, classroom improvements, and increased faculty research.[49] CBE represents a disruptive innovation, moving education away from traditional time in classrooms and instead focusing on flexible, cost-effective, career-oriented learning. It represents a major change in the way education is conducted. To implement a CBE program requires analysis of the current curricula to identify competencies from learning objectives and designing a curriculum that provides credit based on demonstration of competencies rather than successful completion of a set period of study.[50] It is challenging to develop valid and reliable competencies that are uniform in terminology and understood across a profession.[51] While many institutions focus on the upfront task of identifying the competencies associated with their programs, they fail to develop competencies that are easily understood and transportable outside of their institutions.[52] Any competencies developed within Army institutions should be commonly understood across the Army University system, and thus, must be managed in some way by Army University. Ideally these competencies would also be understood and transportable to other military educational institutions and even civilian universities and colleges.

Another area where CBE falters, particularly in military adult education, is in application to seminar-based learning and collaborative events where students must integrate and share their knowledge to complete complex activities. Such events require the mastery of group competencies. Because of the many persons involved in

these activities, pace and mastery of group competencies is often subject to being determined by the slowest or least competent in the group. In such situations, those students with more experience and greater mastery of related competencies tend to lead the others toward the group mastery, which is a hallmark of experiential learning. Groups that advance rapidly and demonstrate mastery of enabling learning objectives may actually be allowed to progress beyond the scope of course terminal learning objectives, moving into advanced aspects of learning. For use in advanced Army education, CBE must take an approach focused on attainment of group competencies to have utility in seminar-based education. Demonstration of a competency by the group relies upon all members appropriately contributing to the process, and not all members will operate at the same levels of competency. This may slow the pace somewhat, but ultimately it allows for group learning leveraging the ELM and can lead to even more advanced learning as group competencies are mastered.

Final Thoughts

The Army has an extremely robust educational system—arguably the largest and most complex associated with any nonacademic organization. This system blends training and education in an environment made up of a large component of adult learners. These adult learners possess diverse experiences which create unique learning requirements to further develop them. To optimize this system, the Army needs to merge its mindset concerning training and education, understanding that both exist simultaneously and complement, rather than undercut, one another. To address its large adult learning population, the Army should adopt an adult-learner instructional model, such as the ELM, as well as establishing environments conducive to adult learning. Finally the Army should better facilitate the unique requirements of individual learners by taking advantage of many of the flexible and tailored learning opportunities made possible by CBE. By staying at the forefront of educational theory and design and recognizing the unique education requirements of its force, the Army will foster a learning organization capable of meeting all challenges posed in the future operational environment. ␣

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