Warning to TECOM

Why we failed learning from the past reform efforts
by Donald E. Vandergriff, TECOM G5

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The effort to reform Marine Corps training and education (learning) currently underway at TECOM under the leadership of MajGen William F. Mullen, III, as well as the broader vision of our Commandant, Gen David H. Berger, with which it is aligned, draw much inspiration from the reform of the Prussian Army during the Napoleonic Wars.[1] There are also, however, relevant lessons and insight that can be drawn from the recent experience of the U.S. joint force. Army Training and Doctrine Command (TRADOC), for example, has attempted reforms that closely parallel those underway at TECOM.[2] Both history and recent experience provide us with a stark warning: We will fail if we do not manage expectations across the entire Marine Corps.

For reform to be successful, we must develop a coherent strategy that can be operationalized into campaign plans with achievable goals and a sufficient level of detail to achieve them. Secondly, TECOM must lead from the front by clearly communicating our strategy to the entire Marine Corps. Every Marine, from the general officer to the new recruit, must understand where we are going as a Service and how training and education are going to take us there. As new accessions begin their training with innovative learning methods, they must be able to transition smoothly into the Fleet where they will continue to learn through these methods. They cannot move from modern leadership development methods during entry-level training (Recruit Training, OCS, TBS, School of Infantry/Marine Combat Training, etc.) to something that is different in the Fleet, which may be disorienting and disappointing.[3]

We must foster an environment where Marines are rightfully excited to join the ranks and are not sorely disappointed by a "say-do" gap between what they learned in their initial training and what they experience in the Fleet.

Marine's hearing one thing during their initial training and experiencing another in the Fleet nurtures a culture of cynicism where the motivation is sapped from our future leaders. We must ensure that the methods Marines learn during training are the same, or at least complementary, to those employed in the Fleet.[4] If we teach one thing in the schoolhouse and practice another in the operational forces, we will fail in our effort to improve the warfighting culture of the Marine Corps.

The Industrial Age
After the Vietnam War, the Marine Corps lost so many experienced NCOs that they were forced to centralize and standardize training and education, to the point of over-bureaucratization and script writing for instructors. The Corps created several internal agencies, and all had a vote and veto power on how training was conducted. This had the unintentional effect of disempowering commanders who are chiefly responsible for the development and combat readiness of their units.

Standardization in a large organization is necessary and can be good; for the Marine Corps to fight effectively, many, if not most tasks, must be done in a proscribed way. We cannot, however, standardize to the point where all lesson plans are identical down to the instructor level, and there is no room for creativity or flexibility in the training environment. We have gone too far with detail and oversight, which has destroyed the quality of instruction and arguably sapped the initiative of our Marines. There is a growing dichotomy between how we conduct operations and how we teach people, and we need to bring those areas together.[5]

In today's traditional approach to training, Marines and units train a task—individual and collective—until they reach a minimum standard under a specific set of conditions. Immediately on demonstrating this baseline level of proficiency, Marines hurry along to the next task like a worker on an assembly line. In the vast majority of cases, this approach does not require Marines to learn the "why" behind their actions or to advance beyond the minimum standard stated in the manual.[6]

Marines become adept at performing the choreographed steps of an established process, but when faced with changing conditions, these Marines can do little more than revert to the "rehearsed solution," regardless of whether or not it is appropriate to the new situation. There is little or no emphasis on the development of judgment or initiative in our Marines. This traditional approach is not well-suited to building warriors who can think effectively and adapt to unforeseen changes on the battlefield.[7]

The task-conditions-standards approach to training is the product of an industrial assembly line mentality that was born out of the industrial revolution

and reinforced during our military's more recent experience in the Cold War. As the West faced the threat of a massive Soviet assault, we envisioned the rapid mobilization of Reserves to fight a few titanic battles on the plains of Europe. In this type of environment, an assembly line approach was a logical solution because it was (and continues to be) fast, efficient, and simple enough for masses of newly mobilized troops with no previous military experience to quickly grasp. With a powerful, but predictable, adversary on the other side, time and efficiency were prized over effectiveness, with baseline competence being far more important than true mastery. This traditional training approach has remained appealing because it resembles the "management science" applied by major corporations. (See Figure 1.[8])

In the end, it is about throughput: "How many [lieutenants] do we need?" "Okay, are we making the standard, the end strength?" Then we are good! The efficiency of the production line is prized above quality. The evolving approach, institutionalized after the Vietnam War, maintained the necessary throughput while sufficiently training large numbers of people in the fundamentals of warfare. The "crawl-walk-run" or "task-conditions-standards" training doctrine of the Marine Corps has its roots in the large-scale rapid mobilizations of World War I and World War II. It was institutionalized following Vietnam into a formal approach to all training and education. In other words, Marine Corps learning (all aspects of how we develop as individuals and as an organization) remains grounded in an Industrial Age culture![9]

The Cognitive (Information) Age

Outcomes-based learning (OBL) is a different system for development, meaning that training and education are not treated as distinct, but are nested under learning. By the way of analogy, OBL is to learning what mission command or mission orders is to operations.[10] Instructors are given requirements but not directed how they must achieve them. They are then held accountable for the results. The doc-
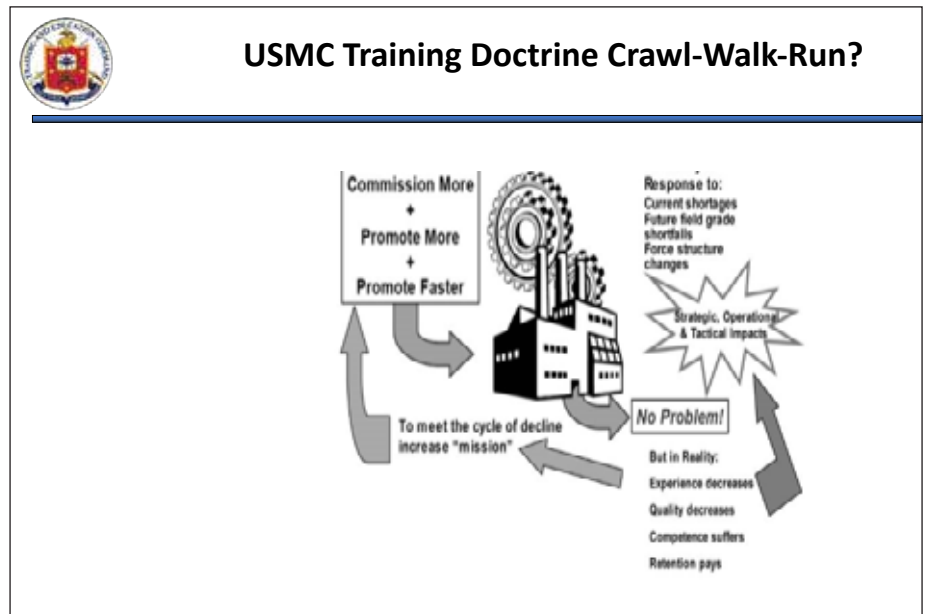

Figure 1.

trine of OBL stresses the development of intangible attributes such as initiative, critical thinking, judgement, and responsibility. The learning philosophy uses observable outcomes to measure the self-development and effectiveness of learning. More importantly, it uses those outcomes to develop more adaptive[11] Marines and units that are better prepared for the rigors of 21st century combat.[12]

Outcomes based training and education (OBTE)/OBL is not a program of instruction (POI) or a workshop. Rather, it is an approach to all learning (formal/informal education and training) that can (and should) be used in every school or POI. It needs to be clear (at the conceptual level) that OBTE/OBL is the Information Age approach that is the best way of getting to what MajGen Mullen defined as the "intellectual edge" in his 18 July 2018 guidance on the direction of Marine learning.[13] (See Figure 2.)

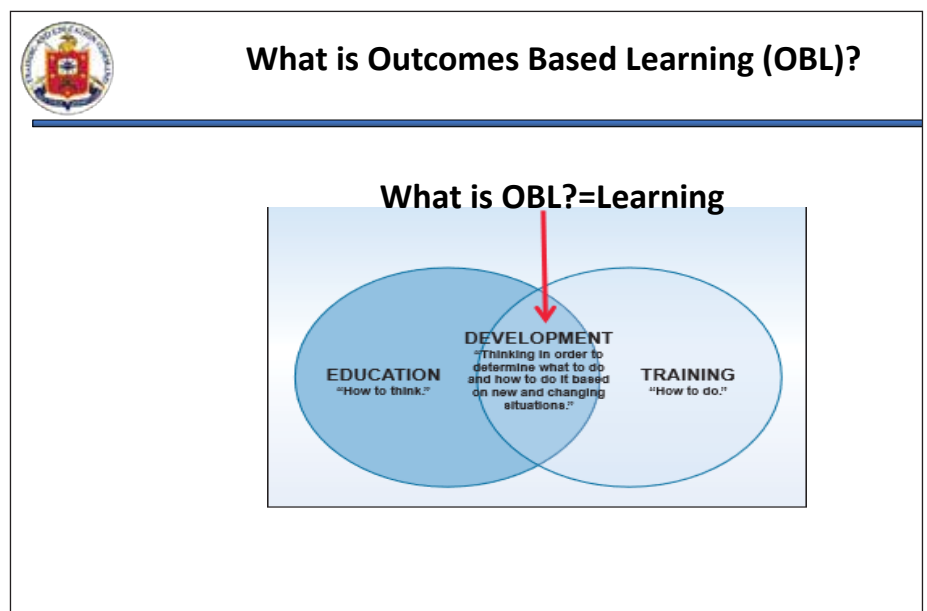OBL is an approach to planning, managing, and delivering learning.

Figure 2.

It results in the attainment of a set of holistic, observable, and measurable skills and behavioral traits (outcomes) in individuals and units. It does so by requiring a thorough understanding of the underlying principles and increasing mastery of fundamentals, gained while progressing through a series of increasingly challenging scenarios. These scenarios always require the instructor and student to think and solve problems in context; tasks are taught in context of a problem and not in standalone step-by-step processes used today.[14]

The Attempt at Reform-US Army TRADOC

Members of the Army Asymmetric Warfare Group (AWG) realized that learning was stuck in the Industrial Age in 2006 while observing units and individuals struggle with irregular warfare in Iraq and Afghanistan. As a result, they began teaching CATC (Combat Application Tactical Course) using marksmanship as the baseline. They conducted it at Fort Jackson, SC, under commander of BG Jim Switters, a former Delta Force Commander who had many retired Delta team members at AWG as Soldiers and contractors. They became the cadre to teach CATC, moving their high standards and methodology down to a baseline Army level. They used marksmanship as a way to demonstrate how OTBE worked because everyone in the Army had to qualify yearly. It was extremely successful; the AWG team was well-regarded and were placed in high demand throughout the Army, teaching at several divisions and centers of excellence, particularly at Fort Benning, GA, and Fort Sill, OK.[15]

Parallel to the latter effort, retired Army officer Don Vandergriff wrote *Raising the Bar: Developing and Nurturing Adaptive Leaders to Deal with the Changing Face of War* (POGO, September 2006), stating that Army training was too inward focused, too checklist-driven, and could not develop critical thinking leading to adaptive behaviors. This was based on his experiences while serving as Associate Professor of Military Science at Georgetown, taking the program from 241st to 1st in the Nation in three years (2001-2004). He devel-oped the adaptive learning methodology (ALM) from his experiences at Georgetown ROTC. It was OBTE applied to the classroom, with problem solving exercises at the core of the curriculum. When he retired, Vandergriff was hired by GEN Kevin Brynes, Commander TRADOC, in 2005. Brynes' guidance to Vandergriff was to bring his methodology to develop adaptability into the Army. Brynes was fired in October 2005, but other efforts overlapped and supported what Vandergriff was doing for the learning classroom.[16]

Meanwhile, in the same period, COL Casey Haskins, USA, radically changed training (learning) to OBTE from input or Industrial Age to the Cognitive Age using outcomes as he commanded 198th Infantry Brigade OSUT (Infantry One Station Unit Training) at Fort Benning, GA, in 2006-2008. Before commanding the infantry brigade, he was Director of Training for the Infantry Center and questioned how training and education was conducted at the Infantry Advanced Course (for captains). After commanding the brigade at Fort Benning, he assumed director of the Department of Military Instruction (DMI) at the United States Military Academy (USMA) West Point in May 2008. After taking over, he brought AWG and Vandergriff to DMI to teach workshops on how to do OBTE and ALM (for the classroom) for four years. But while in charge at Fort Benning and the Military Academy, he encountered continued resistance from school administrators and the institutional Army despite the dramatic, positive results he was achieving.[17]

AWG began pushing OBTE in 2006, and then added ALM in 2008; its first conference held was in November 2008 at Johns Hopkins with personnel from across the Army and Marine Corps attending. Following this, Army Chief of Staff George W. Casey pushed Vandergriff's ideas in an email to every two-star in the Army in September 2009. This resulted in both Vandergriff and AWG getting an invitation to every TRADOC training post to teach. They also continued to teach at USMA DMI until Casey Haskins retired in the summer of 2012.[18]

Academic Support

Fortunately, OBTE was supported by ongoing academic work, including the observation and analysis of the scientific community as it was conducted at Forts Benning, Jackson, and Bragg, as well as West Point. Yet, as we will see later, academic evidence and support was not sufficient to make OBTE a permanent Service-wide learning doctrine.

From here to MOS school and then the FMF. How will they be received at their new unit? (Photo by LCpl Grace Kindred.)

Dr. Robert Bjork, Dean of the UCLA School of Psychology and a world leader in learning, lectured the Army on how it trains. He told TRADOC at briefing August 2006, the way the Army trains (and educates) is backward from the way that people learn, in that it builds sequential steps up to a "whole picture" rather than emphasizing the "big picture," or the "why," first. He presented to the new Commanding General of TRADOC, GEN William Wallace, and his staff in August 2006 (the author was present) and was well received.[19]

But GEN Wallace realized that to do what Bjork advocated, even though it was scientifically supported by thousands of hours of experiments, would cause total disruption to how TRADOC was designed to support the Industrial Age model. In his opinion, it would be better to allow individual courses evolve under an umbrella of the current doctrine. Unfortunately, bureaucratic inertia was on the side of the status quo.[20]

In sum, Bjork's work, as it relates to evolving the current task-centric and process-centric approach to Army education, can be summed up in the following: Conditions of instruction that make performance improve rapidly often fail to support long-term retention and transfer, whereas conditions of instruction that appear to create difficulties for the learner, slowing the rate of apparent learning, often optimize long-term retention and transfer. This means you constantly vary the tools used to reach learning outcomes.

Further evidence for why OBTE was superior to the Industrial Age method of training was conducted by Dr. Gary Riccio of the Wexford Group. Several scientists contributed to, "An Initiative in Outcomes-Based training and Education: Implications for an Integrated Approach to Values-Based Requirements." This study was released in March 2010. Its findings conducted over March 2008 to March 2010, from observing development events at Fort Jackson and the DMI at West Point, found that:

• Instruction can be designed, developed, and implemented with respect to basic skills that lead to better un-

derstanding of a situation including relationships among elements within a relevant situation.
• Instruction can be designed and implemented in verifiable ways that apply to all levels of leadership and leader development for a curriculum or program of instruction.
• Soldiers do not rise to the occasion in combat; they fall back to their highest level of training and education. The highest level of training and education should relate directly and unambiguously to the most important requirements in Army doctrine, such as Army Values and Warrior Ethos.[21]

If OBTE was so much better than the Industrial or Input methodology (competency theory of education) of training, then why did TRADOC resist?

Why We Failed

We failed because change or revolutionary change is too hard! TRADOC resisted because it also had a proven methodology to learning called the doctrine of task-condition and standard, through the crawl-walk-run method of teaching.

There are additional reasons as well. Too many people believed in the current system, to the point where it could not be questioned. After the Vietnam War, the Army was in bad state; training and personnel were underfunded. There was a massive renaissance that occurred in the 1980s, which fixed many of these problems (except the personnel system). On top of this, decades of a massive PR campaign began after Vietnam (1975), stating the "U.S. Army was the best in history" and "in the world" had a negative impact; "If we are so good, why change?" many would ask, as they resisted any evolution.

The Army had recently implemented the task-condition-standard evolution from institutionalizing the industrial model under TRADOC Commander William DePuy in 1976; the entire culture of the Army and TRADOC was built around it to support a culture based on mass mobilization for a global war of attrition. Moving from an input/inward driven system to an outcome (mission command) system would demand sweeping cultural change.[22]

The U.S. military had recently won the Gulf War I (1991) and II (2003) and Afghanistan (2001) decisively (achieved short-term objectives), while the asymmetric wars of Iraq and Afghanistan were on going, this validated the point above. (Victory in all those conflicts had more to do with the poor quality of the enemy than with the supremacy of the Army and left horrible strategic consequences).

The senior leaders of the Army, the three- and four-star generals and civilians, had been in the aftermath of Vietnam, and believed the structural and training reforms (but no personnel system reforms) conducted then, remained relevant. In an Industrial-Age culture, tangibles trump intangibles every time. It is easier to make changes to technology in the short-term, as well as force structure, than to wait and see the long-term results from personnel and educational development reforms.[23]

U.S. society is impatient. It is obsessed more with technological or tangible solutions (easier to throw money at something in the short-term) than intangible (harder to measure and long term) solutions. The tangible solutions also benefit from proponents among program sponsors, industry, and interested Congressional staffs. The intangible solutions are harder to measure; the short- and long-term benefits are hard to see without long-term and often expensive studies. It is important to note that although these factors may have prevented the Army from "buying in" to OBTE at an organizational level, there were many smaller-scale successes at the unit level.

Some Success

Over five years from 2007 through 2012, with almost non-stop lectures, workshops, and training events, the three parallel efforts of Casey, AWG, and Vandergriff made significant progress. While their efforts were harmonized through their own cross talk, there was no oversight from a central authority.

First, they influenced personnel from junior officers to general officers and NCOs on how to look at learning differently. Over 100 articles in military

journals on OBTE—by an array of authors—were written, and most were positive on moving to OBTE. One simply has to put OBTE in a search engine to view the array of papers, articles, and essays published on the subject.[24]

Additionally, the Army Chief of Staff Casey's support by sending out the sixth chapter from Vandergriff 2008 book, *Manning the Legion,* to all two stars generals, won the temporary support of many commanding generals of the centers of excellence.[25] These included MG Peter van Gel and his replacement, MG David Halverson (Fires Center of Excellence), MG James Campbell (Armor Center), MG Jeffrey Smith (CG Cadet Command), and MG H.R. McMaster (Maneuver Center of Excellence), who hosted conferences and pushed reforms based on OBTE throughout schools and commands (but once they left, those efforts away).[26]

MG van Gel hosted conferences, continual CATC training, and had Haskins, Darwin, and Vandergriff teaching and lecturing at the Fires Center of Excellence. MG Campbell allowed group to transform the Scout Platoon Leaders Course to the Army Reconnaissance Course using OBTE as the doctrine (Summer 2009). MG Smith pushed significant changes to ROTC summer camp and made Vandergriff's book, *Raising the Bar,* number one on cadre reading list through 2014.

MG H.R. McMaster (2012-2014) hosted mission command conferences and speakers, and also placed much of Vandergriff's work on recommended reading lists. Vandergriff was also hired by 316th Cavalry brigade again for nine months in 2015 to teach mission command (that included OBTE) workshops to every Armor School and some Infantry School courses.

In reaction to Special Forces Qualification course and Ranger School, then moving to more process-oriented assessment and evaluations, key personnel brought in AWG and Vandergriff to implement OBTE (but after 2012, when key supporters in those courses left, it reverted back to "competency-based").

What do all these temporary changes mean? While significant changes were made, and they had a positive impact on many leaders, only a few stayed at their courses in pockets within a class or pertained to a teacher who brought the methodology with them or were kept as a hidden curriculum out of sight when inspected. We will use a well-known outline to examine why we failed despite several bright spots to bring in a better learning methodology to the Army TRADOC.

Kotter Provides a Guide to Why We Failed

John Paul Kotter is the Konosuke Matsushita Professor of Leadership, Emeritus, at the Harvard Business School, a New York Times best-selling author, and the founder of Kotter International (a management consulting firm based in Seattle and Boston). He is a well-known thought leader in the fields of business, leadership, and change, and has written several best-selling books on change management. Dr. Kotter uses an "8-step process" to help manage transformation for major organizations and cultures.[27]

Kotter's steps include:
1. Create a sense of urgency.
2. Build a guiding coalition.
3. Form a strategic vision and initiatives.
4. Enlist a volunteer army.
5. Enable action by removing barriers.
6. Generate short-term wins.
7. Sustain acceleration.
8. Institute change.

We will discuss these points from the perspective of what did not occur that undermined otherwise noble efforts to reform how the Army learns and prepares for war.[28]

The first step of creating a sense of urgency is essential and was not widespread except for a few aggressive mid- and lower-level leaders. Just getting a transformation program started required the cooperation of many individuals located throughout TRADOC and the Department of the Army. Too many people believed in the current approach to training and education and saw no real need to change. Without motivation, the members would not help, and the effort went nowhere eventually after five years of strong tide and activities.

The second step was not creating a powerful enough guiding coalition. The calls for reforming the way TRADOC (and the Army) learned started with just a few people. In cases of successful transformation efforts (the German move from tactical- to operational-level maneuver warfare from 1919 to 1939 comes to mind), the leadership coalition grows and grows over time.[29] This occurred at the lower levels of leadership. But major changes from the top down did not occur because the Chief of Staff and the Commander of TRADOC were not active supporters (led with policy and incentive changes to protect the agents of change and their work). Again, as mentioned earlier, they made positive statements, but beyond that, no initiatives were put in place at their levels to encourage change pushed by the bottom.[30]

The third reason for failure was lack of a unifying vision. As there was lack of support from the top beyond verbal quotes, an effective and easily understood vision of what the future should look like was never put forth. This vision would have clarified the direction in which TRADOC and the Army need to move. It would have clearly defined all the necessary changes that had to take place over a few years to ensure OBTE became the new learning doctrine. Finally, it would have unified separate actions that nest well with each other to meet the future state in a way that generated synergy.[31]

The fourth reason was "under communicating." Beyond several journal articles, there were no formal policy directions pushing for change and supporting OBTE. These were not accompanied by individual incentives that awarded those who made and carried out change. Without a vision from the top this, in itself, is almost impossible. The transformation was impossible unless hundreds or thousands of Soldiers and Department of the Army civilians were willing to help, often to the point of making short-term sacrifices. Soldiers and Department of the Army civilians would not make sacrifices, even if they were unhappy with the status quo, unless they were convinced that useful change was possible and that their ef-

forts would be protected. While a small vocal group was insisting that OBTE was better, the underlying current remained the same. None of the most vocal of the group moved beyond field grade, which to some degree discredited their assertions the eyes of the institution

The fifth barrier to reform was the failure to remove barriers to change. While conferences at the two-star level were allowed to occur, articles were published in journals, and workshops were conducted at the invitation of course directors and units; within the framework of existing Army regulations and policies, many senior leaders paid lip service to the process. They did not change their behavior or encourage their subordinates to change. They did not reward the unconventional ideas called for under OBTE. They allowed Army human resources systems to remain intact even when they were clearly inconsistent to the new ideals, such as viewing the impact on formal schooling results had on one's career; rewarding leaders for trying, failing, and succeeding at implementing new ideals and finally assigning the best and brightest to be instructors as a step toward promotion and selections necessary to go further in one's careers.[32]

Another barrier that remained the same was how courses and training were approved and inspected. Many institutions, such as Range Control, had veto power over OBTE-led initiatives because they did not understand how things were done differently. There were constant disruptions to OBTE events simply because those inspecting were using the old checklists. With no barriers removed, once high-level advocates moved on or retired, implementation of OBTE ceased, and the Industrial Age of training returned policies and regulations had remained.

The sixth error was not systematically planning for and creating short-term wins. Or in the case of OBTE, exploiting what wins were accomplished, like moving units and courses from the Industrial Age to OBTE and publishing their successes Army wide for all to see. Two of the biggest successes of the OBTE effort were the changeover of the

USMA DMI and the Army Reconnaissance Course (ARC) complete curriculum change to OBTE. In both cases, the directors and their cadre (and overseeing chains of command) established goals for their period of command (in the DMI case, Casey Haskins was there four years), to include performance improvements, achieved outcomes, rewarded people involved or mastered the doctrine, and promoted it when outsiders were interested in what was being done. Cadet surveys and interviews at DMI started positively reflecting the cognitive results they were learning through OBTE at DMI.[33]

The ARC set up a blog site where students posted their views of the course, many stating they had never experienced a learning experience like the one they had at ARC before (or afterward). Yet, outside those who attended and taught at these courses while trying OBTE, little was known about what was going on, and its success.[34] Because of the lack of top-level support, results were not published Army wide, and because of the decentralization of its execution, the deputy commander of TRADOC actually demeaned and barred anyone associated with OBTE to teach or conduct workshops at any initial entry-level courses that he oversaw (which was a big setback for the progress made). His reason: OBTE was too decentralized, not standardized, and too complex for Soldiers to teach and use in mastering the so-called basics.[35]

The seventh failure was sustaining the short-term victories. Surely, if places like DMI at West Point and ARC at Fort Benning can be transformed, these can be seen as victories that would push the tempo of change? Yes, they were, but the problem was as soon as the champions of change (their bosses or key figures) left, momentum only continued if their replacements possessed the same passion for change as their predecessor. Systems were not there to support sustainment such as rewarding great instructors and visionaries, or allowing commanders or course directors to stay on to implement an overall vision (if it had existed).[36]

Finally, the eighth issue was changing the culture. In this regard, we may

have not failed as this kind of change is generational. It is yet to be seen; only six years have transpired since the efforts to implement OBTE, and we may be seeing the beginnings of meaningful change to the Army culture. It is common to think that unless you change the organizational culture, nothing really changes. Hence the many change initiatives that are specifically focused on changing organizational culture. Kotter thinks that attempting to change culture first is a mistake—better to make the practical changes to structures, processes, and behavior and let these changes lead to a culture change. The lack of these things led to our failure, but at the same time encouraged many people to take them into account with transformation.[37]

In Sum: Almost Done Can Be Done[38]

Reforms of large bureaucratic organizations, particularly military ones, without the threat of a major conflict or disaster in the field, can only done by a top down and bottom up process with key people seeing it through for several years. This transformation must be synchronized through a sound strategic plan accompanied by a strategic communication plan, overseen by someone with sufficient rank, with a single focus on the transformation.[39]

Without the "top cover" of senior leader support (did not ever openly support the effort), OBTE was allowed to fail as key figures left below them. The initiatives associated with OBTE reverted back with new names but the same policy substance. While many key leaders at the Chief of Staff and major command levels made statements in articles that appeared to support OBTE, they did not sign key policy changes that were necessary to support the effort such as changing TRADOC regulations to move to OBTE. Key leaders voiced support but did not act on it that would change the incentives to cover the people who made the changes necessary in programs of instruction, doctrine, curriculum, and how instructors were selected and prepared.

The focus was entirely bottom up, with little effort to gain top down support. As stated above, no key leader was

willing or able to sell OBTE to the top leadership—even though it did have the academic and historical evidence to support the argument for change. This was not translated into a strategic communication plan short of what the various reformers wrote as articles for professional journals. Other sources of power were not thought of such as Congress, but this is hard when the engines of change have no direct access to Congressional leaders.

Finally, all the key players had conflicts, they also had full time jobs (other responsibilities) and could not devote their full efforts to reform. This allowed many important activities to fall to the wayside, as key members had to put priorities on those things they thought they could accomplish, such as teaching others how to employ the methodology, at the expense of other important activities that would have contributed to a strategic outcome. As a result of their jobs, they did not or could not spend the full time, outside teaching and lecturing on the strategic message, such as identifying or finding key supporters in positions of power (just influence). This occurred as people were met throughout teaching at workshops or at conferences. Thinking they were ignored, this led to continual resistance from the general officer/senior executive service level, if not open resistance and refusal to acknowledge the ongoing efforts publicly. Many important people felt they were being ignored, when in fact there was not the time or right people to do everything necessary to sustain the effort.

Notes

1. Headquarters Marine Corps, *MCDP 1, Warfighting,* (Washington, DC: June 1997).

2. MajGen William Mullen, *Commander's Guidance to TECOM*, (Quantico, VA: Training and Education Command, July 2018).

3. John P Kotter, "Leading Change: Why Transformation Efforts Fail," *Harvard Business Review,* (1995), available at https://hbr.org.

4. Maximillian Uriete, "Terminal Lance: Meet the Fleet, Number 540,"*Terminal Lance,* (June 2019), available at https://terminallance.com.

5. Antoine Bousquet, *The Scientific Way of Warfare: Order and Chaos On the Battlefields of Modernity,* (New York, NY: Columbia University Press, 2009).

6. Tim McGee, W. Jacobs, William Kilcullan, and J. Barber, "Conceptual Capacity as Competitive Advantage: Developing Leaders for the New Army," edited by Hunt, Dodge, and Wong, in *Out of the Box Leadership: Transforming the Twenty First Century Army and Other Top-Performing Organizations*, (New York, NY: JAI Press, 1999).

7. Allison Schrager, "Factory Schools," *Quartz*, (June 2018), available at https://qz.com.

8. Frederick W. Taylor, *Scientific Management: Comprising Management, The Principles of Scientific Management,* and Testimony before the Special House Committee, (New York, NY: Harper and Row, 1964). The Competency model first appeared in New York City Schools in 1905. It was developed, and public schools patterned afterward, on producing factory workers. You see today in such concepts as "Leave No Child Behind," where students are trained for the test using rote memorization.

9. John Taylor Gatto, *Dumbing Us Down: The Hidden Curriculum of Compulsory Schooling,* (New York, NY: New Society Publishers, Limited, December 2004); John Taylor Gatto, *The Underground History of American Education: An Intimate Investigation Into the Prison of Modern Schooling,* (New York, NY: New Society Publishers, Limited, January 2001); John Taylor Gatto, *Weapons of Mass Instruction: A Schoolteacher's Journey through the Dark World of Compulsory Schooling*, (New York, NY: New Society Publishers, Limited, April 2010); Dan Glazier, "Military Reform through Education," (Washington, DC: Project of Government Oversight, October 2015).

10. Headquarters Marine Corps, *MCDP 1-3, Tactics*, (Washington, DC: June 1997).

11. Morgan Darwin, "Developing Outcomes, Presentation at the U.S. Army Asymmetric Warfare Group Workshop on Outcomes-Based Training and Education," (Laurel, MD: Applied Physics Laboratory, March 2009). The word Adaptive seems to have taken on a platitude-like state for the Marines. We repeat it without knowing what it means or whether we are all defining it the same way. Adaptability is "the ability to appropriately adjust—a strategic, an approach, a skill, a COA, etc.,—in response to a given situation, a given set of stimuli or shift thereof." Things we need to be adaptive:
    1. Recognition (that adaptation is required).
    2. Understanding (of what is needed/how to execute).
    3. Capability (to communicate and execute).
    4. Incentive (to do so).
    5. Feedback (re: whether actions require further adaptation).

12. M. Darwin, "Outcomes Based Training and Education, Fostering Adaptability in Full Spectrum Operations brief," (Asymmetric Warfare Group, Fort Meade, MD: December 2008).

13. *Commander's Guidance to TECOM.*

14. M. Darwin, "Outcomes Based Training and Education, Fostering Adaptability in Full Spectrum Operations brief," (Asymmetric Warfare Group, Fort Meade, MD: December 2008).

15. M. Glenn Cobb and Thomas R. Graves, "Applying Combat Application Course Techniques to Rifle Marksmanship in Basic Combat Training (BCT): Acquisition and Retention of Skills," (Arlington, VA: U.S. Army Research Institute for the Behavioral and Social Sciences, March 2010).

16. Donald E. Vandergriff, *Raising the Bar: Creating and Nurturing Adaptability to Deal with the Changing Face of War*, (Washington, DC: Project of Government Oversight, September 2006).

17. COL Casey Haskins, USA, and Donald E. Vandergriff, "Their's Is to Reason Why," *Proceedings*, (Annapolis, MD: United States Naval Institute, February 2010).

18. Craig Currey, "Outcomes-based training: What'sNext? Initial Entry Training Journal," (Fort Jackson, SC: Training Journal, October 2008).

19. N.C. Soderstrom and R.A. Bjork, "Learning Versus Performance: An Integrative Review," *Perspectives on Psychological Science,* (Thousand Oaks, CA: SAGE Publishing, 2015).

20. Robert C. Bjork, "How We Learn Versus How We Think We Learn: Implications for the organization of Army Training," Briefing, (Fort Monroe, VA: U.S. Army Training and Doctrine Command, August 2006).

21. Dr. Gary Riccio and M. Darwin, "Principles and Practices of Outcomes Based Training & Education," in G. Riccio, F. Diedrich, and M. Cortes, M.(Eds.), "An Initiative in Outcomes-Based Training and Education: Implications for an Integrated Approach to Values-Based Requirements," (Fort Meade, MD: U.S. Army Asymmetric Warfare Group, August 2010).

22. Donald E. Vandergriff, "Chapter 5, Institutionalizing the Process," in *Developing Leaders for Mission Command: A Superior Command Culture,* (Annapolis, MD: United States Naval Institute Press, September 2019).

23. Antoine Bousquet, *The Scientific Way of Warfare: Order and Chaos On the Battlefields of Modernity*, (New York, NY: Columbia University Press, 2009).

24. Donald Vandergriff, "Today's Training and Education Development Revolution: The Future is Now," Association of the United States Army, (May 2010), available at https://www.ausa.org.

25. Donald Vandergriff, *Manning the Legions of the United States and Finding Tomorrow's Centurions*, (London, UK: Praeger Publishing, May 2008).

26. Donald E. Vandergriff, "Training (Developing) Tomorrow's Soldiers and Leaders," in *Manning the Legions of the United States and Finding Tomorrow's Centurians*, (London, UK; Praeger Publishing, May 2008). This chapter was also furnished to the Army Chief of Staff GEN John Casey who sent it out to all two star generals in the Army to read and apply in the summer of 2007.

27. John P. Kotter, "Leading Change," (Boston, MA: Harvard Business Review Press, November 2012).

28. John P Kotter, "8-Step Process for Leading Change," *Kotter,* (2012), available at https://www.kotterinc.com.

29. James S. Corum, *Roots of Blitzkrieg: Hans von Seekt and German Military Reform,* (Lawrence, KS: University Press of Kansas, 1992). If one wishes to read about a large, hierarchical organization that was successfully reformed (much less a military one), this is the definitive study. James Corum deserves much credit for familiarizing modern readers with the name Hans Von Seeckt and showing what can be done when a military hits rock bottom and must change. To set the stage, Germany has lost World War I, the Kaiser has abdicated, there were revolutions in the streets and Germany's army has been shrunk by the victorious Allies to a shadow of its former power and capability. A man is chosen to command the Reichswehr in this time of defeat and humiliation: Hans Von Seeckt. Von Seeckt was not associated with the disastrous defeat in the west, having been in Turkey at the end of the war. He comes in with a clean slate, as it were, and takes advantage of it. Among the first things he does is to order the creation of a series of committees to look at what went wrong (and also what they did right) in the last war. He essentially orders these officers to take a no-holds barred approach in which heated debate and criticism were not only tolerated but encouraged. Unlike most large entities, the German army could tolerate mavericks and eccentrics to a greater extent than other contemporary militaries. When it came time to select officers and men for the new, 100,000-man army Von Seeckt and his subordinates preferred men of intellect instead of the nobility or even the front fighters–the men who rose from the ranks during World War I. Von Seeckt wanted men—at all levels—who could think on their feet and who could understand what to do even without orders from above. Von Seeckt kept air officers even though the Treaty of Versailles forbid them an air force. He retained men with experience with tanks even though they were forbidden tanks. Hans Von Seeckt and the Reichwehr wanted men with the broadest experience and intellect possible. Standards were high and only the best and brightest could pass the written and verbal testing to join or advance in the inter-war army. Von Seeckt was not a "father" of Blitzkrieg although he created the environment where it could be "born" and even steered it along a little without knowing in which direction it would ultimately go. This is not just a fine work of military history, it is a story of a failed enterprise that managed to reform itself into a very successful entity that in a couple decades would arise and challenge the world–and come within a few mistakes by their head of state of winning.

30. In contrast see the reform of training begun in 1973 by GEN William DePuy, in James T. Stensvaag, *Transforming the Army: TRADOC's First Thrity Years 1973-2003*, (Washington, DC: Center of Military History, May 2003).

31. Corinne McLaughlin, "Visionary Leadership," *Corinne McLaughlin,* (May 2010), available at http://www.visionarylead.org.

> Visionary leaders are the builders of a new dawn, working with imagination, insight, and boldness. They present a challenge that calls forth the best in people and brings them together around a shared sense of purpose. They work with the power of intentionality and alignment with a higher purpose. Their eyes are on the horizon, not just on the near at hand. They are social innovators and change agents, seeing the big picture and thinking strategically. There is a profound interconnectedness between the leader and the whole, and true visionary leaders serve the good of the whole. They recognize that there is some truth on both sides of most polarized issues in our society today. They search for solutions that transcend the usual adversarial approaches and address the causal level of problems. They find a higher synthesis of the best of both sides of an issue and address the systemic root causes of problems to create real breakthroughs.

32. Donald E. Vandergriff, "Personnel Reform and Military Effectiveness," *POGO,* (August 2015), available at https://www.pogo.org. The real genesis of our personnel system came up right before World War II and was largely the work of George Marshall. He was responding to the problem of building a mass conscript-based army and drawing heavily on his experience in World War I. And for that problem when the Army has to expand more than a hundredfold in just a few years, the system actually makes a lot of sense. But Marshall had grown up in a war when soldiers were literally learning how to load their rifle the night before their first battle. In that context, treating everybody like a dumb cog is actually not that far off. Officers and NCOs had so little training or experience.

33. Department of Military Instruction (DMI), United States Military Academy at West Point, New York, available at https://westpoint.edu.

> The West Point Core Military Science Program consists of three 40 lesson courses that prepare our cadets for tactical leadership. The program is outcome-based and teaches sound decision-making under pressure. Cadets initially learn fundamental tactical skills and then progress to solving highly complex tactical dilemmas that require them to apply their knowledge and common sense in finding solutions. Instructors emphasize the principles that underlie U.S. Army Doctrine while avoiding reliance on checklists, set processes and 'approved solutions.' Our focus is on creative thinking, guided by the higher Commander's Intent and an adherence to the Rules of Engagement and the Law of War. The curriculum is designed to strengthen cadet character and adaptability. By employing a variety of teaching techniques that include heavy use of Tactical Decision-Making Games, simulation exercises, and open discussions, the Military Science Core Program builds the skills and nurtures the attributes and qualities of character that are essential for Army Officers on today's complex battlefields.

34. Brian Skima, "Overcoming Ambiguity: Tips for the Army Reconnaissance Course," *The Medium, Coffee and Camouflage*, (May 2019), available at https://medium.com.

35. Based on personal observations of LTG Mark Hertling and COL Casey Haskins July 2009 at the Department of Military Instruction (DMI). LTC Hertling had no interest in discovering why OBTE was better than the current Army training doctrine. Soon after this conversation, LTG Hertling sent out an email barring anyone associated with OBTE from teaching or speaking on the subject at Army Initial Entry Schools (basic training and Advanced Individual Training).

36. The success has been studied by several US Army supported behavioral science groups, as

well as individuals. The best pool of data is kept at the USMC DMI pool with one of the best papers here, available at https://www.usma.edu.

37. "8-Step Process for Leading Change."

38. This is also based on endless hours of discussions with Mr. Christopher Casey, Change Management Consultant, and an authority on strategic planning for transformation. More details of Mr. Casey's experience can be found here, https://www.linkedin.com. Mr. Casey is currently assisting with the TECOM transformation of learning from the Industrial Age to the Information-age.

39. Douglas MacGregor, *Margin of Victory: Five Battles that Changed the Face of Modern War,* (Annapolis, MD: United States Naval Institute Press, June 2016).

Emphasizing military strategy, force design, and modernization, Macgregor links each of these seemingly isolated battles thematically. At the core of his analysis, the author reminds the reader that to be successful, military action must always be congruent with national culture, geography, and scientific-industrial capacity. He theorizes that strategy and geopolitics are ultimately more influential than ideology. Macgregor stresses that if nation-states want to be successful, they must accept the need for and the inevitability of change. The five warfighting dramas in this book, rendered in vivid detail by lively prose, offer many lessons on the tactical, operational, and strategic levels of war.

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