

## Just a Shiny Object

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### ABSTRACT

Much has been said in recent years about the need to involve and integrate more tools of technology into the learning process for today's digital learner. However, the majority of the focus has been on ease of use, whether making delivery of instruction different, or replicating hard copies of learning materials into digital ones. In the emerging era, the focus no longer needs to be solely on the ease of use.

The shifted target should be on the adapted learner. No longer will the learner be on an island in a learning ecosystem that makes them feel uncomfortable. Instead the case should be made for creating, in the learner, a stakeholder in their pathway to success. This is done by exploring how to incorporate innovations in learning technology into the instructional design to allow an adaptive environment for the learner to excel in, by gaining deliberate practice in areas where they need it most, as well as increasing repetitions and sets towards achieving mastery in their area.

This paper will demonstrate the case to shift emphasis to the benefits in learning efficiencies, increased adaptability, and personalization that innovations in learning technology can provide to the learner. Also, by identifying the gaps that still persist inside an organization that continues to move forward with modernization, but are subsequently leaving the learner behind, will illustrate the requirement for proper implementation with a learning outcome in mind, versus creating the false appearance of progress by providing a shiny new object.

### ABOUT THE AUTHORS

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### THE SHINY OBJECT

The United States Marine Corps received a focused direction upon General Robert B. Neller becoming the Commandant of the Marine Corps (CMC) in 2015. In early 2016, the CMC released FRAGO 01/2016: Advance to Contact. Albeit specifically to the future of the Corps and the Marines within it, the goals, focus, and aim are likely aligned to the other branches within the Department of Defense (DoD)-improving the way service members are trained for a changing battle space.

The focus from the CMC was aimed to incorporate the innovative and emerging technologies and practices into the methods of training and educating Marines. Neller (2016) recognized that the future battle space will, “involve rapidly changing and evolving technologies and concepts,” that will force the Marine to, “be more agile, flexible and adaptable.” (p.2).

The evolution of change, however, is an increasingly rapid one, in which the services are sprinting to catch up to technological advances. The academic and scientific communities find themselves in a technological race, and innovation brings about new and emerging technologies, which are aimed to enhance both training and education. This is no different for those organizations, research groups, and corporations that seek to be a part of the solution for the services within the DoD. Providing new technologies, emerging concepts or methodologies in a rapid manner should be the goal of these groups in order to better prepare our service members for the changing environments, which they will face.

The growing friction point, however, is what may be referred to as the Valley of Death, or otherwise stalled in the research or acquisitions process. Alternate issues may arise from programs and projects that make it through the valley, only to rest on the proverbial shelf and collect dust, without ever having been incorporated into a unit’s training plan. In order to avoid the stalling out of these programs, and to allow for the success, these organizations should focus their own efforts to be able to weave their innovation into the fabric of training and education seamlessly.

Accomplishing this mission is not as simple as it seems. Innovators and the DoD should be able to partner with one another in order to provide enhancements in training and education, which will be used immediately. The first step in accomplishing this is to ensure that the learner is taken into account, during the development phases. Considering the Instructional Systems Design (ISD) phases, which all military services use in formulating their training and education programs, should be priority in order to maximize the potential for transition and integration. Innovations should have a shared vision-that of the research team, and the eventual unit or stakeholder which will lead the integration effort. All of these must finally incorporate adaptability into the equation for ultimate success.

### The Adapted Learner

There is much information to be sought after when considering the new generation of learners that the military services are comprised of. Regardless of their actual level of education completed, the services see a similarity among their learners. The generation truly exhibits qualities and characteristics of the Adult Learner, laid out by Knowles (1983), most of all wanting to feel that they are an active part in their learning, but it is also changing. The learner is moving to become more involved in learning socially, as well as across multiple platforms for learning.

The end state, however, remains the same for the service. This is echoed in the CMC's FRAGO in his statement that the force should be "resilient, fit, disciplined and able to overcome adversity." (Neller, 2016, p.4).

### **The Stakeholders**

Among the core principles of Andragogy and the Adult Learner (Knowles, 2014), the adult learner needs to know what they are learning matters, and they need to understand what the personal payoff is. Otherwise meaning that the learner needs to be an active stakeholder in the learning process. While this may seem readily obvious, in that the learner should be engaged, the developers should note that any new innovation, technology, or methodology should not seek to ease the engaging burden on the learner.

The efforts of the service are moving towards operating in a distributed environment across the globe. This constantly widened range of military operations (ROMO) will require for a more decisive service member from all echelons. Therefore, any innovation should be focused on enhancing and developing their ability to make rapid decisions without being able to work every issue up the chain of command.

Creating stakeholders in the learners is edifying them along a stage of self-directedness. Knowles addresses this (2014) as the self-concept of the learner, which works to make the learner more autonomous. Grow (1991) addresses the same concept in the Staged Self-Directed Learning Model (SSDL). The particular stage to focus on is Stage 3 of the SSDL, which has Learners of Intermediate Self-Direction. In this phase, the learner can see themselves as future teachers, and are prepared to work with the teacher. The teacher takes on the role of a guide, or facilitator. This model reflects the teacher-scholar model first laid out by General John A. Lejeune, and leader-led instruction is again at the horizon of military training.

This mimics the training and education programs found in today's military. In an increasing cry from deploying units to acquire their personnel sooner, the training and education schools are under significant pressure to produce increased throughput on a reduced timeline to train and educate service members. Developing innovations that are customized to meet learning outcomes ultimately put the learner in the driver's seat. Digitizing the learning environment has the potential to benefit future operations in a distributed environment where learning will be shepherded by leadership within the local units. Modernizations to curricula should focus on enhancing their ability to do so. Creating innovations that both harness student-centered learning, as well as the ability to take advantage of adaptable learning systems, should create an environment that is conducive to eliminating redundancies in training and increasing learning retention. Both of which will work towards the goal of focusing on the learner and reducing the time to train and educate.

Training and education innovations should progress parallel to each other in the Marine Corps to ultimately invest in the totality of their learners. Military and industry should be aware of the leap ahead progression required to keep pace with emerging advances in technologies and learning sciences, but should be cognizant of the organization's ability to do so. For example, Marine Corps' Education Command has identified a gap in meeting the enlisted learner where they are in regards to educational technology. Resident enlisted schools in the Marine Corps do not possess the network or digital technologies that provide a personalized learning environment, create a means to conduct research, or offer a forum for collaboration outside the brick and mortar school. Challenges like this are seen throughout the Department of Defense and are not unique to one branch of service. Instead, this one example demonstrates the requirement for understanding the learner as a stakeholder and the significance of the environment in which they learn.

### **Social Learning**

The collaborative mindset of the current and future learner is more social than in times of the past. Technology develops rapidly; the growth of social media and its platforms are growing exponentially. However, they parallel the process of learning for the generation of learners to come, which involves engagement and collaboration.

In his book on Social Leadership, Stodd (2016) points to this as social learning and leadership, in which learning moves past a classroom-based learning environment and into a real-world application. He points to technology as being able to foster and engage the learner, which is crucial because collaboration needs to be fostered, and is a must in order to be productive. Expanding upon the thoughts aforementioned by Grow and Knowles, Stodd (2016) notes

that there is a new role, that of the Social Leader, which takes on a duty of facilitator, mentor or coach, which also drives at leader-led instruction. It works to downplay the formal hierarchies in place. Therefore, innovations must seek to capture this movement and trend, in order to enable the abilities of military learners to harness this type of learning and leadership.

Innovations must drive at increasing the collaboration among not only the teacher-learner, but among the units, which are utilizing the technologies and implementing them into their programs.

### **Change in Behavior**

Ask any veteran, regardless of nationality, or service, and they will all mention the same sentiments towards tradition. It has worked for years, why change it now? Thankfully, innovators and DoD leaders alike are now realizing there is a need for change and the time is now. Recognizing the time and need for change and combining with the nature of the learner to be social can be an affable partnership in the making.

Transmedia Learning is about driving toward a measurable behavior change through a sustained experience to provide a coordinated effort across multiple media to relate a narrative (Raybourn, 2013). The question should then be asked of innovators, what is the story being told? What are the narratives that the learner is to follow in order to be able to grasp the concept or competency that is going to enable their change in behavior? There is room for success within this type of learning concept, particularly in the military. In the ability to connect solutions, instead of working in stovepipes to create stand alone solutions, the ability arises to provide for learning experiences that will be more connected and enduring (Raybourn, 2013). Take advantage of what is already operationalized in the forces, and understood by personnel, and work to form connections and bridge gaps, which will allow for a smoother integration into training and education programs. Further, it will allow for a change in the behavior of the service member by transforming their paradigm for a learning process, while allowing for a deeper learning experience, which will ultimately drive greater learning retention. (Moreno and Mayer, 2002).

### **ISD is the Key**

Every branch of service derives their development of curricula from the Instructional Systems Design (ISD) or Systems Approach to Training (SAT) process. The branches each have their own versions of policy or doctrine driving their development, yet derive from the DoD Handbook, MIL-HDBK-29612-2A, the Instructional Systems Development/Systems Approach to Training and Education. The process consists of the five phases of the ADDIE model. A major point of emphasis in delivering success with innovations is to take part in the ADDIE process with potential customers. The Navy added a Planning phase to the use of their model in 2010, for a P-ADDIE model. Focusing on the Analysis and Evaluation phases will carry innovations a greater distance towards integration and transition. This can also be accomplished by following the focus of what DoD states that ISD/SAT should enable their leadership to do (DoD, 2001):

1. Prepare forces for combat
2. Ensure training is realistic as possible
3. Conduct training for all types and levels of war
4. Give special attention to training for joint and combined operations

The developers should take the range of learner into consideration as well. For example, the Marine Corps enlisted education curriculum is designed for the Lance Corporal to Sergeant Major/Master Gunnery Sergeant. The instructional design of curricula must be created with the intent to digitize the academic environment to meet the requirements and challenges of the modern battlefield. In today's military, leadership expects their enlisted service members to think critically, apply creativity and clearly communicate requirements and orders. The integration of innovative technology must be purposeful. The capabilities of a device must be engineered in order to effectively deliver a tailored education to the individual learner.

### **Analysis**

Analysis should be a phase that focuses on the tasks that are being trained to. Utilizing the majority of task-based learning among the services, this means the task, condition and standards which service members will be expected to perform during their training.

A concern with training and readiness programs that focus all too often too closely to the existing tasks, attempt to alleviate the developers of responsibility of in-depth task analysis. This often leads to changes that are formative or administrative in nature, versus seeking out true gaps in learning or capabilities and driving to affect changes where appropriate to meet those needs. Just the same, when innovations are created to meet a perceived gap in training, the analysis cannot similarly be weak. It should be formed in a solid foundation of asking the question why. Why is this innovation going to be useful? To whom will it be useful? What operational training or educational need will it solve? And often overlooked, how will this innovation be trained to, sustained, maintained, and scaled to the entire force that it is intended for.

This step can be taken a layer deeper in understanding the individual service processes for implementing change into a learning system. The Marine Corps, for example, operates on three-year battle rhythms of the Training and Readiness (T&R) manuals. These manuals are revised on this schedule, and requirements are built from these T&R manuals. This leads to a criticism of research and development from the operating forces, at times. Is the technology being built to support an existing T&R task, or is a T&R task being created to support a new technology? The innovator should note and at least have an understanding of the process that is going to have to be undertaken in order to implement a technology for use into a training program. In areas such as aviation, where simulations and technology are inherent to training programs, it is not a large hurdle to overcome to implement a new technology. However, in other occupational fields where an innovation delivers technology into a training program that is not used to utilizing or operating with such a technology, can become more difficult. Understanding the process for analysis allows the innovator to know where their work will best fit in, and also gain a feel for the timing requirements.

### **Evaluation**

Finding the answer to the question of why an innovation is needed is only the first crucial step. Facing the evaluation phase can be even more disconcerting because far too often, there are those afraid to ask truly whether or not their innovation or program is doing what it set out to do. This was highlighted during the summer of 2015 when Training and Education Command's (TECOM) MAGTF Training and Standards Division (MTESD) conducted a Simulations Assessment Working Group (SAWG). The SAWG set out to seek within the T&R manuals which tasks could be trained to standard using existing simulators or simulations. These that were identified were then implemented into Change 1's of each T&R manual. What this highlighted, though, was the need for developers of innovations to think ahead to know what the training standards are for the intended use of their simulation. Seeking more utilization, carry this a step further and identify where sims can be integrated, or linked to accomplish collective events or multiple events at once. Again, reducing time to train, and also providing for increased repetitions, which are goals of all commanders.

Understanding how the units and formal schools are going to evaluate personnel on the event in question, or the task, will enable the innovator to be a step ahead when preparing for transition. However, this should not be the first time that the developer is working to understand these. Developers should consider the ability of their innovation to progress the learner toward an outcome, or training to a standard.

In 2011, a weapon system was being developed to meet urgent needs in theater. The system was set to deploy in three months time, and consultants from a Marine Corps unit were sent to the lab facility, not to evaluate the system, but to mentor the unit that would be using the system on operating in the airspace around Afghanistan. Upon arrival, and completion of the collaborations to discuss operations, the Marines were invited to look at the system from the developers. Within five minutes, the senior Captain posed a question to the scientist that seemed benign, but upon review highlighted a potential grave flaw in the system's design. This led to the delayed deployment of the capability by nearly a year. This example highlights a program that neglected to work with the end user to figure out how the project would work when ultimately operationalized.

### **Innovate for Success**

The successes that occur in implementation and transition are due to forged partnerships early in the process of design and development, and solidified during evaluation and implementation. In creating the vision for what

problem the innovation will solve, or the need it will address, the innovator should also begin to think of these potential partnerships as early as possible. Once this is done, fostering the implementation of the innovation can be made simple, while following some other rules of thumb.

Directing the innovation back to the learner is key. The innovation, aside from meeting the already mentioned need, should grasp the learner. It should make the learner want to grow, allow them to learn, and instill a drive in them towards mastery. The innovator, as in how they will be achieved, should answer these questions. In the end, mastery will allow for the fostering of mentorship, which drives back at the leader led instruction which the DoD is shifting focus to.

### **Engage and Maintain**

Much has been written about the millennial learner and their utilization of technology. The masses may think that the increased usage is due to the engaging nature of technology, or due to having shortened attention spans. However, it has been shown that the millennial has grown up using multiple technologies and platforms (Best, Buhay & McGuire 2014). The incoming military trainee reflects this characteristic and could be referred to as a digital native. With that being said, the innovator must work to face this challenge of grasping the attention of the millennial learner to be able to ensure that it is indeed engaging, while building upon experience that these digital natives already have.

This is not the only reason, however. Return back to the ideals laid out by Knowles. The adult learner wants to know why they are doing what they are doing, and this could be no truer in military personnel. Every service member feels that they are constantly under a barrage of requirements for training, whether skills, annual or ancillary. Implementing a new technology or methodology is going to raise the hairs of the experienced service member and they will immediately ask, “why?” Innovators should prepare for this question. They should not only be prepared to engage the end user with their innovation, but provide concrete evidence and answers to why they should be utilizing it.

The common example given with regard to simulations is with the aviation community. Stating that within the aviation community it is very important to utilize simulators because if you mess up in the simulator, despite the mental feeling of death an instructor may bring, no physical death or harm is likely, and just as important to the military, there is no loss of equipment. The aviation simulation is engaging to the learner because of the increasing presence that is being built into the upgrades, creating a more realistic environment with which to train and aligning it more closely to the real world experience.

This can equally be accomplished with other training aids and innovations, so long as the innovator understands the perspective of the learner, which will be using it.

### **Growth**

The ultimate goal is to provide for growth in the military learner, and ultimately driving toward mastery in their craft. Learners in stage four of Grow’s SSDL (1991) are willing to take responsibility for their learning, direction and productivity. This stage can only be realized if innovations are provided that will emphasize the ability to reflect on decision making abilities, enhance the ability to draw out lessons learned, and readily utilize innovations as tools to help do so. One such example of implementation can be taken from Second Battalion, Sixth Marines.

Second Battalion, Sixth Marine Regiment (2/6) is based in Camp Lejeune, NC. 2/6, over the last year, has become a leader in integrating technology, innovations, and methodologies into their training programs in their work up preparation for deployment. This is being led by an innovative mind and under the leadership of LtCol Marcus Mainz, who fully trusts his Marines to be leaders, thinkers, and teachers.

Second battalion begins the process by forcing themselves to be uncomfortable, and becoming used to working within these feelings of being uncomfortable. This allows the unit to view itself as an organism, as a creative body. Meaning, in lieu of being a systematized, process-oriented organization, that it instead, is one of reflection and change. Noting, that within an overly systematic organization, that processes are often difficult to change once established, 2/6 thrives as their ability to identify gaps through reflection ultimately allows for improvement, correction and change.

Early on, 2/6 recognized that the vulnerabilities of their practices and decisions were exposed through their analysis of the metrics and data that was being collected. They found, however, that despite the extraordinary amount of effort that collecting this type of information takes, that there were many systems available to assist them. The systems allowed 2/6 to be able to focus the efforts they turned onto one another during force on force exercises; those typically exerted on the enemy, and allowed them to review the data more closely. Force on force exercises initiate far more decisions than a field exercise with traditional opposition forces. The battalion continues to develop their tactics attempting to be faster than the physical systems that their enemy places against them, because they use the data collected to reflect on their decisions, determining the why of their actions. Force on force can successfully be completed through live or simulated exercises. The battalion routinely conducts squad through company-sized force on force simulations using Deployable Virtual Technology Environment (DVTE) suites. The same after action review (AAR) capability within these suites is provided through systems like quadcopters, the Instrumented Tactical Engagement Simulation System (I-TESS), and Combat Camera, coordinated through a developed exercise control force.

In particular, the value of a system, such as I-TESS, and the use of quadcopters, lies in their ability to record the actions undertaken in high fidelity, offering the opportunity in the AAR to reflect, and then spur changes to their future decisions. These decisions are made relative to a live enemy, reproducing many of the same technologies and advantages current enemies possess. The single most important addition that 2/6 can make as an adaptive organism is time. As long as they can provide adequate time to absorb and process the data, their reward is identified Tactics, Techniques and Procedures (TTP) that require their attention. They are able to, as a whole organism, deconstruct major battalion level exercises, down to individual decisions. Marines use different filters to analyze and identify decisions down to the individual Marine. A single battalion force on force exercise produces many hours of after action video for review, tactical decision games based on each platoon commander's experience, as well as formal surveys completed by observers.

Over time patterns are identified and decisions are refined. Further, with the feedback, data, and information these systems are able to provide, no leader or Marine is able to hide from being held accountable, and being thus forced to reflect on their own actions and decisions. The senior members identify patterns quickly to the junior members. This group style reflection builds the pattern recognition of the junior members quickly and efficiently. As this reflection process is replicated, what were once large discrepancies are corrected at lower and lower levels. Individual engagements are studied by their commanders through different mediums, well past the date of execution or first review. The only wrong is not making a decision or the failure to articulate the reason behind a decision (Lind, 1985).

Technology and systems real life tactical scenarios into Tactical Decision Games (TDG), forcing commanders to examine their own decisions. This develops the commander's capability of self-examination by forcing the commander to revisit their decision. The recipients of this wealth of information are the junior Marines, now receiving decision reviews through multiple filters. This thorough self-examination helps forecast training needs for future planning at all levels of the organism. Further, it allows each decision of an individual leader to be broadcast and understood by each individual of the group. Through simulations, individuals can be placed in the exact circumstances of their peer, and be forced to make a decision, and then contrast their decision with what actually occurred. Every effort is focused to increase the reps and sets of decisions made by junior Marines, whether through live, simulated, or reviewed force on force training.

A single after action review, broadcast in the highest fidelity possible through the many focused lenses highlights the second and third order effects of each decision on the entire organism or unit. This requires adequate participation from all to include the most junior levels of leadership. Group reflection also requires public acceptance of responsibility, which builds trust within the unit. All of which, being made possible by technologies adapting to the training needs of the unit, creating a connection between decisions and effects, allowing for growth in the Marine as a learner.

### **Mastery**

While mastery is not always an explicit goal, it is a goal to be sought after regardless of task or mission. The questions are how do innovators provide for further opportunity to master skills, knowledge, or TTPs? The answer  
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is staying within the reachable abilities of the unit, and the service member. Far too often, technologies can outreach the ability of personnel to be able to use them, or are just overly complicated to implement. Instead, the innovations should feel as an extension of what is already being done, albeit in an enhanced manner. This can be a burden to the unit operations officer or even the commanding officer, as they are often not aware of the resources that may be available to training. If they are aware of all of the tools available, it could be prohibitive if the effort to implement the training resource into a training program is cumbersome. The utilization of the innovation should be easy to grasp by the end user, and then can be readily implemented into a training program.

Adaptability is a must, in order to provide for mastery. A common issue in the past of where instructional technology has failed is the ability for the user to game the game. This means that the user is then able to race through the process, checking the box, and showing completion, but not gaining any ground toward mastery. The innovation, instead, should be able to simultaneously assess where the individual learner is, and create a personalized path toward mastery. This increases the level of engagement, as well as the perceived return on investment on the part of the learner. Further, being adaptable and personalized, will allow for greater data assessment on the part of leadership to identify the level of progression of their learners.

In a future vision of shortened time to train, the ability for a learner to accelerate their own learning should be made available through these innovations. Creating training aids that are able to augment their training and education, while providing the ability for a learner to be able to accelerate beyond a prescribed timeline, will increase the ability of the training unit to produce trained individuals at a more rapid pace.

Mastery requires behavioral change as well. This means that the training aids of the future cannot be reiterations of the initial computer based training modules of the early instructional technology era. In many of those cases a student could simply click through the module, with little to no checks for understanding, and within five minutes be declared complete with said training. Mastery requires focused, deliberate and purposeful practice towards a goal, and the path to such must be thought out before product delivery.

### **Pitfalls and Guidance**

Innovators are in the position to drive change through innovation because of drive, passion and vision. If these are harnessed correctly, and utilize a common pathway for success, then their goals will be realized. Common pitfalls should be avoided, and while not being all-inclusive or conclusive, they are some common areas to avoid, while there are some other guidelines that can be followed for success.

### **Incorporate the End User**

Early and often, identify the stakeholders. This will prevent systems from being deemed ready for initial operational capability (IOC), like the example given in this paper, only to discover it was not ready to be deployed. Incorporating the end user, will also allow the innovator to make the innovation adaptable, and ensuring that if the end user needs to make changes, they will be able to do so. Once the item is transitioned, it should be able to be maintained by the end user solely. This has been a common issue in previous systems where the end user has to constantly go back to the contractor or supplier every time something needs to be changed. Particularly in training and education, the end user needs to feel like they can create their own programs, or scenarios, or be able to change when the environment or threat changes. Incorporating the end user can mitigate this.

### **Value Added**

In the self-analysis of the innovation, be sure to question what the added value of the innovation is going to be for the end user, the unit, or their service as a whole. This should be readily apparent, tied to a mission, or addressing a known and specific gap. The more globalized the issue that this will address, the more likely success will be had. For example, drones appear as a cool new toy, or another shiny object. However, if one takes a drone, and adds in the ability to capture terrain data that can be then used immediately by a commander making decisions, value has been added. If a unit in the field can use a small drone to act as a scout ahead of the unit on march, that is value added. Working together, the developer and the unit should be asking themselves, what is the innovation bringing to the table?



### **Red Cell**

Often, military units use a red cell to play the enemy, find ways to defeat plans, or for a broader term, play Devil's Advocate. This has to be part of the process of the innovator. Play Devil's Advocate. Where will the innovation fail? Is it physical? Is it not sturdy enough to be taken into the field, ship, or aircraft environment? Or even something simpler, will it not meet specifications for utilization? A common hurdle being faced currently is with innovations that require Bluetooth or wireless connections. Aside from the ability of some services to even use handheld devices, Bluetooth and Wi-Fi are still not guaranteed amenities. Within some units, even a desktop computer cannot be assumed available to every learner or facilitator. Ask the questions early and often, is the innovation seeking to support or enhance a TTP, or is it going to derail it? These questions should include the set-up and tear down times. It should be addressed how much training is required to use the tool. Further, answer the question of where this would fit into their pre-deployment training, as necessary.

### **What is Too Shiny?**

As the title of this paper alludes to, beware of the shiny object. Far too often there are attempts at innovating that are merely putting the lipstick on the porcine. Service members see right through this-immediately. The latest and greatest and shiny objects are great for playing with on the weekend during their down time, but when it comes down to black and white, and life or death, and the seriousness of operations, then it matters. Can the innovation truly support, or is it a very pretty paperweight?

Another issue within this area is when the innovator will spend far too much time creating the perfect avatar, or the realistic background, while giving little attention to underlying frameworks that create adaptive, flexible, and tailored learning innovations. A commander is not going to be willing to spend their money on a tool that merely dresses up another already implemented tool. Innovation should bring about change to a process that is in place that is direct, obvious, and sustainable.

Pay particular attention to the physical nature of the innovation, if it is to be worn, utilized, or added to existing equipment loads. Standing around on the showroom floor with the equipment or even for an hour during a field test is one matter. Humping across hilly terrain in the wind and rain for 20 miles over a ten-day field exercise is another. Durability has a different meaning in the military. It must survive the elements, the mission, and the user.

### **CONCLUSION**

The training and education systems of today's military are as diverse as the traditions and personnel within each branch of service. What is common among them, however, is their goal to take a group of diverse populations from all walks of life, train and educate them to a common baseline, and then be able to employ them in the mission of defending a nation. This requires a dedication to providing the very best training and education possible for the service member. Our nation's leaders and service leaders are recognizing the need to adapt, innovate, and change the ways in which we train and educate. However, it does not mean a waterfall of funding, nor a barn door blown wide open for those seeking to be a part of this wave of innovation. It means that the leadership will continue to scrutinize where money is spent, and the unit leadership will scrutinize what comes within the confines of their training domain.

There is opportunity for success exists if developers and end users coordinate on the path for change. The demand signal is not for a new shiny object or the cool new toy. The desire and rallying cry is for tools, techniques, methodologies, and innovations that will enhance learning effectiveness, retention, increasing repetitions, while reducing, if able, the time to train. Innovators that want to continue to be part of a successful partnership must evaluate their own processes of development to insure that they are aligned with the desires of their potential end user, and their service, before stepping off in a direction. Doing so will enable them to have a smoother process towards integration and transition, and will also prevent them from spending time and money on just a shiny object.

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communities.

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