

Hypermedia Microlearning Hybrid Publications

CW4 Michael Franz



The Army should incorporate hypermedia microlearning in publications to facilitate technical skill maintenance, connect to new generations of Soldiers, and allow senior leaders to reference updated information. The world changes far faster than the Army can create manuals or instructions. Publications can only transmit a limited amount of nuance, limiting the degree of reader understanding. The Army can quickly transform written media into hybrid digitally augmented hypermedia by adding quick response (QR) codes in the margins of written material that can link to various digital content activities. Examples of the most effective augment materials include games, podcasts, short descriptions, and videos that further explain and explore the nuanced aspects of printed information. This type of augmentation is familiar and ubiquitous, but it has yet to be widely employed to explain Army skills. Implementing this technology offers excellent benefits, but it also has limitations on how the Army can apply the concept. Nevertheless, it is an overall easy supplement to existing Army educational products that have the potential to deepen technical understanding and skill development at the individual Soldier level.

In my current assignment, I am an officer course instructor at the U.S. Army School of Music (USASOM). This assignment is the first time I have had the opportunity to work on any training and doctrine throughout my career, having spent much of my career in division assignments. In my first year, I focused on deep diving into the U.S. Army Training and Doctrine Command (TRADOC) culture and observing as much as possible to deepen my competence as an Army instructor. Part of this deep dive was watching an Army training circular (TC) refinement. I followed CW3 Kevin Pick, who worked in the USASOM Directorate of Training and Doctrine (DOTD) office, as he was working on precise language and image updates to TC1-19.10 Army Ceremonial Music Performance. Toward the end of my time observing CW3 Pick and his team, they asked if I had any input from an outsider's perspective. The writing seemed complicated and difficult to understand, even though the directions and images were thoughtful and precise. The content was also information I understood after having used the skills extensively over the last few decades. It would be so much easier to demonstrate the task they were working on than attempting to explain the job in a training document. We could add a QR code in the margin of the TC that links to a video demonstration of the task. Everyone agreed but pointed out that adding the QRs to the document would be a lengthy uphill effort. Hypermedia contains links to other media that can allow an end-user to interact and connect with concepts and media in a non-linear way. This path allows the consumer of that media to explore related content in a way they choose, allowing their thoughts to flow in a path that best suits their

learning style. “Hypermedia technologies support much richer user interfaces, more complex navigation mechanisms, and more varied forms of information than conventional systems” (Lang, 2004). The most compatible hypermedia mode of delivery for paper TCs are QR codes. These are also known as physical hyperlinks or hard links. Writers can easily place these codes within text or in the margins, and they can be as small as two square centimeters (Tarjan, Senk, Tegeltija, Stankovski, & Ostojic, 2014). The Army has already started using QR codes in a few different ways. One way is a QR code that can access Training Manuals (TMs) for vehicles allowing Soldiers increased access to the document for vehicle and equipment maintenance. These QR TMs need to meet the operational definition of hypermedia in the context of this recommendation, as they only connect to a single document. There is a moderate risk of the code getting smudge or damaged in a way that could misdirect or fail to direct, but it would not be critical to the overall document. QRs applied to Army publications should also serve a double role as a digital hyperlink when users access them in their digital format. This additional function can allow users to navigate between content mediums quickly. Unmonitored hyperlinking can result in chaotic structures, leading to problems such as straying too far from the hypermedia’s original intent or creating difficulty locating relevant information (Lang, 2004). The Army Publishing Directorate (APD) would be a good starting platform to serve as a repository for hypermedia-connected content within the Army system.

Microlearning is a technique that uses short bursts of information delivery to learners. Writers can break down large complex topics into smaller concepts in videos, podcasts, infographics, short articles, or games. Studies of microlearning indicate that short content formatted lessons may increase information retention by up to 20 percent (Giurgiu, 2017). Some studies have even demonstrated retention level increases of up to 150 percent (Capeda, 2009). This approach allows learners to access the content at their convenience, at the time and place of choosing. It also makes it easier for learners to fit study into busy and often conflicted schedules. The short and highly focused nature of microlearning modules also makes lessons more applicable to real-life situations at the exact time these lessons the learner needs them. The best application for this type of training is for procedural activities, new system operations, or reinforcing existing knowledge. Various versions of micro lessons are scattered throughout the Army and applied to various topics. For example, the Sabalauski Air Assault School produced the first one I can remember using as a series of short video demonstrations of the day zero obstacle course. Access to these videos enhanced my confidence before I attended the course and made it easier for me to navigate the obstacles when I confronted them in person.

The Army already employs various versions and degrees of hypermedia and microlearning concepts. The easiest way to direct broad implementation would be for centers of excellence to crowd-source and centrally control media input. Social contribution plays a crucial role in effec

tive organizational microlearning, allowing learners to be creators (Giurgiu, 2017). Every center of excellence has a group of dedicated professionals working in doctrine writing and development who can vet the accuracy and credibility of any sourced material. Doctrine writers also have the institutional knowledge required to ensure that the augmented material meets the criteria for approved doctrine. However, some publication subjects may need to be more familiar or complex to employ microlearning concepts. In these cases, it is best to train developers from the proponent centers of excellence or schools to create the microlearning modules. QR links to recommend changes, request additional information, and add lessons learned should also be placed on training manuals to facilitate more direct interaction between training and doctrine developers and the Soldiers who use their products to accomplish their missions.

Including this augmentation benefits three distinct types of Soldiers directly: new Soldiers, practicing professionals, and senior leaders. New Soldiers are already learning their life skills using this type of methodology. This slight change in how the Army publishes distributed training information will meet Soldiers' current understanding and culture of learning, significantly increasing the speed and depth they can learn and apply new skills. Practicing professionals can build increased depth, individual proficiency, and currency to their existing skills. This can be especially valuable to COMPO 2 and 3 Soldiers or Soldiers who may have taken a broadening assignment that would take them out of regular practice through performing typical duties. Breaking subjects into small and easily understandable pieces makes a skill easier to apply quickly and can increase the retention of that skill over a more extended period (Mohammed, Wakil, & Nawroly, 2018). Senior leaders have increasing workloads and responsibilities as they progress through their careers. This turns their time into an increasingly rare and valuable commodity. Microlearning modules can provide senior leaders the flexibility to learn skills precisely at the point of need as they have time available. This will be especially important as the Army continues emphasizing modernization for senior leaders to track and understand the rapid changes with an increased understanding of new concepts needed to make informed decisions.

Implications of this recommendation through the lens of the DOTMLPF-P framework:

Doctrine: This recommendation has the most implications for increased work for doctrine writers. Doctrine writers should pace input of hypermedia augmentation to occur during the normal doctrine review cycle to avoid overloading the doctrine writing and review process. The cost to apply this recommendation to doctrine will be minimal.

Organization: Individual Soldier skill proficiency is the foundation of collective organizational readiness. Adding microlearning options to augment existing products does not change the personnel construction of units, but it can increase the overall effectiveness of each Soldier within those organizations. This is an exponential force multiplier, even if at a marginal level of effectiveness.

Training: Soldiers will require minimal training to apply this recommendation. The benefits are most evident in this category. This concept will allow the Army to extend the benefits of institutional training geographically and temporally. Training is also amplified by allowing Soldiers to augment their training in a way that best matches how they learn most effectively at a time that fits their schedule or needs in the best way.

Material: While the Army does not need any new material to implement this concept, organizations may gain interest in procuring media production devices to generate more content. This can include cameras, video, audio recording devices, or even computer postproduction software. Quality matters in creating this type of content, but the immediate quality is unnecessary. The concept has room to grow over the next decade with a continuous improvement approach.

Leadership and Education: Microlearning applies to leadership and education similarly to how its application to training. This augmentation will give leaders access to content at the moment of need. This efficiency is critical due to constraints on time and competing interests. Senior leaders need to have learning options that allow for time flexibility to fit into schedules filled with emerging competing interests.

Personnel: This concept does not add or remove personnel from any formation, but it does have the potential to make each Soldier more effective by arranging information in a more meaningful and intuitive way.

Facilities: Current facilities should be able to manage the changes recommended, again with no proposed growth or divestiture. Organizations may construct media production rooms in their current facilities as with material. These are optional to begin applying this concept, but as demand for increased quality evolves, organizations may choose to dedicate such a space in the future.

Policy: This recommendation requires a minor policy change, encouraging the broad inclusion of QR links connecting publications with related content and microlearning supplements. Two Army programs of record are already in place to encourage this concept. First, APD can be a repository and standardization maintainer for written documents. The Combined Arms

Doctrine Directorate (CADD) can continue to hold relevant videos, podcasts, and other media.

Augmenting Army publications with hypermedia microlearning will modernize the way Soldiers learn, customizing approaches to keep pace with rapid advances in technological complexity. All this concept needs to become a reality is a group of champions to prioritize it. This recommendation aligns with Army Futures Command's overarching priorities of prioritizing people, designing Army 2040, and delivering Army 2030 with direct application to the future operational environment, research, concepts, experimentation, requirements, and integration (Vergun, n.d.). None of these concepts are new or untested. Any approach to modernization that focuses on the development of technology without including a plan to develop the human mind is akin to a golfer believing that they can improve their game simply by investing in new clubs. The use of hypermedia is ubiquitous, and its users well understand its benefits. The only actual cost of this recommendation is waiting too long to apply it to Army doctrine. There is no question that the Army will eventually find a way to incorporate this idea in an organized and controlled way. The only remaining question is how long is the Army willing to postpone maximizing the potential of their Soldiers?

References

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