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## **Transmedia Learning: A Paradigm for Transcending Stand-Alone Training & Education**

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### **ABSTRACT**

Twenty-first Century demands on training and education will extend the use of educational technology beyond current approaches and require that we move beyond stand-alone solutions toward more complete, memorable, and enduring learning experiences. One way to facilitate more memorable learning is to incorporate storytelling. While storytelling is a common component within stand-alone educational technology, there is also a need for a storytelling methodology that connects unique, stand-alone learning experiences with each other so that they become scalable, integral elements of one's learning journey over time.

The present paper introduces a new paradigm in training and education called transmedia learning and describes its application in several ways that are important to the IITSEC community. *Transmedia learning* is the scalable system of messages that represent a core experience that unfolds from the use of multiple media and emotionally engages learners by involving them personally in the story (Raybourn, 2012a,b; 2013). First, transmedia learning is defined and differentiated from how transmedia is used by the marketing and entertainment industry. Second, transmedia learning is presented in the context of scalable, cross-platform military training and education as described by the requirements of the Army Learning Model (ALM). Third, technologies for unobtrusive learner modeling, and methodologies for developing and tracking integrated, unified transmedia learning experiences are introduced. The present paper, the first in a series that will introduce the nascent research area of transmedia learning, provides strategies that can be used today to transcend stand-alone training and education to meet the demands of the next generation.

### **ABOUT THE AUTHOR**

**Dr. Elaine Raybourn** has a Ph.D. in Intercultural Communication with an emphasis in Human-Computer Interaction. She is a Principal Member of the Technical Staff in Cognitive Systems at Sandia National Laboratories. Elaine has worked on transmedia learning since 2010 and has led the development of an award-winning Government game that was identified by the Defense Science Board Summer Study on 21st Century Strategic Technology Vectors as "critical capabilities and enabling technologies for the 21st century that show promise." She is an ERCIM (European Research Consortium for Informatics and Mathematics) Fellow and has worked in research laboratories in Germany, England, and France. Elaine speaks regularly on the topic of transmedia learning and serves on several advisory and editorial boards including international journals *Interactive Technology and Smart Education*, *Journal of Game-based Learning*, and *Simulation & Gaming*. Elaine was on the advisory board for the Game Developers Conference (GDC) Serious Games Summit from 2004-2007, Defense GameTech Program Chair in 2011, GameTech Program Advisor 2012-13, and is an Integrated Project Team (IPT) member of the IITSEC Serious Games Showcase & Challenge and a member of the Training Subcommittee. She is on assignment to the Advanced Distributed Learning Initiative, Office of the Deputy Assistant Secretary of Defense (Readiness), where she leads research on transmedia learning systems, ubiquitous computing, collaborative virtual environments, distributed cognition, learner adaptability, and next generation learners' interactions with personalized assistants for learning (PAL). Elaine is a recipient of the Department of the Army Award for Patriotic Civilian Service, awarded to her by the U.S. Army Special Forces.

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### **INTRODUCTION**

The use of interactive technologies for education and training has grown steadily in the past decade. Militaries have adopted serious games and media-rich virtual training for such reasons as reduced cost, reaching out to digital natives who have grown up with technology, and the desire to leverage state-of-the-art tools. However, use of interactive technologies remains largely stand-alone, lacking interoperability of data models, and failing to support informal learning. The present paper posits that in order to effectively train and educate lifelong learners, the next generation workforce, and Service men and women throughout the course of their careers—we must embrace change to transcend current siloed practices and begin delivering more comprehensive training and education that supports 1) connected, scalable, multi-modal learning and 2) the practice of leveraging diverse devices for a globally connected community that is constantly on the move. There are a number of stand-alone training systems or applications available to learners ranging from web-based advanced distributed learning and interactive multi-media instruction, mobile applications, simulations, single-player games, live-action, and constructive or virtual simulation, to multi-player game-based training exercises. These systems, although not discussed in the present paper, contribute to the collection of resources readily available for military training. Notable efforts are made throughout the IITSEC training and education community to prepare learners for unpredictable, complex situations. However, developing agile military thinkers also requires a fairly agile approach that transcends stand-alone systems. This can be a unique challenge for most institutions. The challenge for members of the education and training community is to adapt and change along with DoD organizations as they evolve to address technological and cultural shifts.

One such technological and cultural shift that is poised to enhance military training and education is transmedia learning. *Transmedia learning* is defined as the scalable system of messages that represents a core experience that unfolds from the use of multiple media, and emotionally engages learners by involving them personally in the story (Raybourn, 2013). Transmedia learning is a new paradigm for education and training that has the potential to revolutionize the way militaries learn by providing a framework from which to hone learners' abilities to synthesize information across multiple media channels and become more agile thinkers. More specifically, using this framework, learning is achieved through the use of emotionally engaging and enduring messages, or stories, communicated across multiple, stand-alone media platforms offering diverse interaction entry points into a connected experience (Raybourn, 2012a,b).

The purpose of the present paper is to introduce an emerging OSD (Readiness), initiative in education and training to the IITSEC community. There are very few integrated military applications of transmedia learning in use today by researchers, instructors, or training cadre and therefore few examples of methods, application, experimental data, and effectiveness are available. Nevertheless the concept merits discussion now, so that the military training & education community can get in front of the trend while it is still possible. In subsequent sections of the present paper transmedia learning is defined and differentiated from transmedia efforts developed for marketing and entertainment. Transmedia learning is presented in the context of cross-platform military training and education as described by the requirements of the Army Learning Model (ALM). An example of a transmedia learning effort undertaken in 2010 by the US Army TRADOC TCM Gaming and PEOSTRI Games for Training is discussed. Additionally, technologies for unobtrusive learner modeling, and research presently underway by the author in methodologies for developing and tracking transmedia learning experiences are mentioned as next steps for the subject of a future IITSEC paper. Last, the paper provides strategies that can be used by training cadre and instructors today to transcend stand-alone training and education with transmedia learning systems.

## What is transmedia?

The notion of transmedia learning has been adapted for use in education and training from commercial and entertainment industries such as marketing, advertising, film, and games. When used by entertainment and advertising industries, transmedia engages an audience across multiple media by providing several different ways to interact with digital content. The goal of transmedia for entertainment is to develop, grow, and sustain an audience of consumers. The first use of transmedia was in 1976 to support George Lucas' *Star Wars* although the practice was not known as "transmedia" at the time. A publishing group was formed to produce and promote all products associated with the film such as games, movies, toys, websites, cartoons, books, and comics (Giovagnoli, 2011). The objective was to create a fan base that followed the cinematic experience across different media so as to not miss out on any part of the story. While the films serve as the basis for the main story, the audience can remain engaged in the *Star Wars* storyline through multiple media such as websites, wikis, video games, books, encyclopedias, comics, animated series, toys, clothing, and jewelry, among many others. In fact, the franchise is so large now that the richness of the narrative content is referred to as a story world, or universe. Whether one's interest is political, social, science fiction, or mythology—the franchise offers unique content to appeal to different interests in order to increase their fan base.

*Star Wars* is an example of one of the first successful uses of transmedia, but in this case, transmedia was implemented after the fact with the formation of the publishing company. Therefore many in the entertainment industry point to *The Matrix* franchise (1999) as the first use of a more integrated transmedia campaign because the films are written and released in such a way that the fan base needed to be able to interact with a complex plot line by referring to information that provided related stories on other media outside of the films such as animated shorts, comics, video games, and an illustrated anthology.

According to Henry Jenkins, "A transmedia story unfolds across multiple media platforms with each new text making a distinctive and valuable contribution to the whole" (Jenkins, 2006). This notion is better understood by thinking about adaptation vs. transmediation (Long, 2007). Telling a story in multiple media requires adaptation of the story for each medium, while crafting a single story with multiple media is transmediation. Key to transmediation are the distinctive contributions made to the whole story from the use of multiple media. Some in the entertainment industry argue that transmedia may be a new term for the old idea of cross-media storytelling, but whether it is called transmedia or cross-media, its impact on education and training has yet to be fully explored.

## TRANSMEDIA LEARNING

The application of transmedia learning is a fairly recent innovation. In 2010 this author began applying transmedia storytelling to DOD training and education while developing graphic novels to support game-based training scenarios with the U.S. Army PEOSTRI Games For Training and TRADOC Capability Manager TCM Gaming (Raybourn, 2012a). Through this application, she socialized the idea within DOD while supporting the Advanced Distributed Learning Initiative, under the Office of the Deputy Assistant Secretary of Defense (Readiness). The term, transmedia learning, was later coined by its Director, Mr. Frank DiGiovanni, in November 2012, during a presentation to the President's Council of Advisors on Science & Technology Meeting (DiGiovanni, 2012). The transmedia learning construct has since been refined and defined by this author as *the scalable system of messages that represents a narrative or core experience that unfolds from the use of multiple media, and emotionally engages learners by involving them personally in the story* (Raybourn, 2012b, 2013). The goal of transmedia learning is measurable behavioral change, whether physical, intellectual, attitudinal, or a combination resulting from the ability to synthesize information presented across multiple media channels. Transmedia learning is more than a digital storytelling approach. Transmedia learning is designed to scale training and education to reach as many learners as possible when they need it most. It is also designed to leverage social media to maximize peer learning and access to information. In these ways, transmedia learning is intended to be a force multiplier.

The idea of transmedia learning represents a pedagogical process that has the potential to revolutionize the way militaries will learn in the next 5-10 years. A survey conducted by the Center for Creative Leadership in 2012 with 462 persons (72 percent from the United States) indicated that the most important competencies 10 years from now would be adaptability/versatility, communicating effectively, learning agility, multicultural awareness, self-motivation, and collaboration (Van Velsor & Wright, 2012). That is to say, the need for adaptive and agile thinkers will not diminish, but rather grow steadily. How can we prepare militaries to be adaptive without adapting our

pedagogical processes? How can we prepare leaders to operate in complex, international environments if the stand-alone approaches we often use do not promote scalable, connected learning? Transmedia learning leverages best practices emerging from industry to address the changes required by 21<sup>st</sup> century education and training. These industry best practices show great promise in shaping our understanding of disruptions in technology, pedagogy, learning, and assessment.

### **Why transmedia learning, why now?**

Learners today expect content to be available anytime, anywhere, and on any device. This presents both opportunities and challenges. The opportunities lie in the perception that with multiple devices, learners will be able to interact with educational content longer, more often, and more directly. However the challenges lie in overcoming data deluge. There is a risk that the learner will become and remain overwhelmed as long as no framework, core experience, or strategic process is in place for managing and deploying the distributed learning. Technology-mediated learning in the next few years could easily become a collection of discrete instances, locked in stand-alone tools, and siloed applications.

### **Does transmedia learning differ from transmedia for entertainment?**

There are several similarities, but also important distinctions between the use of transmedia for entertainment or learning. First, education and training should create real connections to content that induces the synthesis of information across multiple media channels for the purposes of learning and developing learning agility. Transmedia learning leverages several new media trends including the peer communications of social media, and the scalability of massively open online courses (MOOC). MOOCs are online courses (e.g. Coursera, Udacity) that feature large-scale interactivity and open access via the Internet. MOOCs offer media that are able to train thousands of learners at any given time—a true force multiplier for the Department of Defense. Social media also facilitates transmedia learning among peers by connecting people with information.

Second, another key distinction in transmedia learning for the military is that learners should see themselves as protagonists of their own story, or at least be able to transfer what they are learning about to their unique situation. Their willingness to buy-in is an integral part of a storytelling effort's success. Good transmedia learning take learners on a journey through narrative and storytelling experiences with dramatic moments in which learners demonstrate how they feel, think, and act. Learners should have opportunities to use their imaginations, be creative, think critically, and be mentally stimulated. In order to mentally stimulate learners, their emotions must be engaged. The human brain is wired to pick up on messages crafted as stories because we feel real emotions when we connect with content or a character in a story (Raybourn, 2012a). When crafting a transmedia learning story, a designer can follow a typical framework for telling stories that involves taking the learner on an emotional journey from setting up the situation, introducing a conflict or challenge, allowing the tension to reach a high point or climax, and finally providing an opportunity for resolution (Gredler, 1992; Raybourn, 2011). These experiences are often identified as being emotionally engaging (Salen and Zimmerman, 2004; Fullerton et al., 2004) although as David Freeman (2004, p. 10) has also stated, “you can't just suggest an emotion and assume the player will feel it.” Creating true affect requires satisfying learners' emotional needs or presenting different opportunities to explore emotions that learners may find appealing to try (Malone, 1982). Why is that? When learners are emotionally invested in the story and see themselves as protagonists in their own training, they not only remember it better, but also continue to respond to new or repurposed content presented in a different way that can associated with familiar emotional triggers. LeDoux claims that perceptions (thalamus) and emotional responses (amygdala) always occur first—followed by judgments of like or dislike formed in the hippocampus (LeDoux, 1996). The limbic system generates emotional memories that make it easier for us to categorize and remember information. Put simply, LeDoux's research indicates we best remember information presented in the form of a story. When done well, transmedia learning can evoke emotions that tap into sensations processed by the brain that may motivate a learner to have better retention of and connection to the content even when explored across several media.

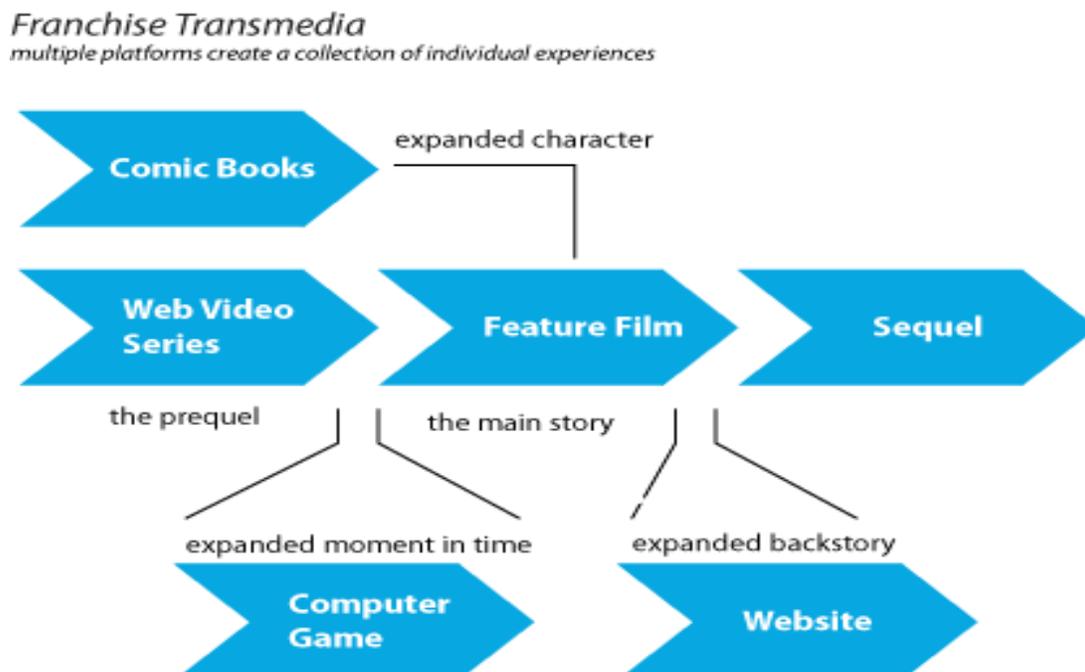
Third, sophisticated transmedia learning for personalized education and training may require computational modeling, data mining, and new assessment paradigms. For instance, a persistent, independent open learner model that can be shared, is interoperable, and is able to process data to recommend relevant, contextual information may become necessary for persistent, life-long transmedia learning campaigns. Stealth methods of assessment (Shute, 2011), social media data mining (Fabian et al., 2012), big data analytics, and user experience tracking (Regan et al.,

2013) would also likely become essential elements of a transmedia learning campaign as well as the ability to secure personally identifiable information and data (Raybourn & Regan, 2011). Finally, transmedia learning should incorporate best practices from theory, application, pedagogy, and assessment.

### Okay, I get it now, so how do I do it?

Transmedia learning is executed through a well thought-out campaign. A transmedia learning campaign offers a cohesive, continuous learning journey that employs rich narrative content and multiple media deployed strategically through a coordinated process. The term “campaign” is used here to refer to the organized process that links several media, related narratives, and training approaches to a single idea or theme. In his keynote address to Defense GameTech 2011, Mark Long indicated that a transmedia campaign is planned early and rolled out on at least three media platforms (Long, 2011). While transmedia implementation is a team effort, the content is usually conceived by one or a few individuals. The content delivered on/via each platform is distinct and makes a unique contribution to the single vision. It also makes use of the specific strengths of the platform. A campaign includes elements that encourage audience participation through technologies such as a Web portal, social media, alternate reality games, or potentially other ways for the audience to contribute to the story by providing user-generated content. These entertainment industry principles can be also applied to a transmedia learning campaign for training & education.

Figure 1 below depicts a typical Franchise Model of transmedia (Pratten, 2010). Although the model assumes no direct user interaction among platforms it remains a good example of a linear, time-dependent campaign that might deploy the comic book and prequel at roughly the same time, and then introduce a computer game, followed by the feature film with an expanded backstory via a Website and sequel video. Each platform may be independent of the others and content often addresses different aspects of the narrative, as in the prequel, sequel, flashbacks, or expanded moments (Pratten, 2010).



**Figure 1. Pratten's Transmedia Franchise Model (2010)**

The Franchise Model depicted in Figure 1 is not the only way to design and execute a transmedia learning campaign, nor is it meant to suggest that a transmedia learning campaign needs to be time-dependent or linear. Additionally, this model does not account for the diverse uses of new media and technologies such as MOOCs or user-generated content (e.g. social media) that would be an important element of a transmedia learning campaign. An adapted version of Pratten's Transmedia Franchise Model is used below in the subsequent section to illustrate a basic transmedia learning campaign for the ALM.

## TRANSMEDIA LEARNING FOR MILITARY APPLICATION

The U.S. Army formally identified a learning model to meet a new training and education need in TRADOC Pamphlet 525-8-2, *U.S. Army Learning Concept 2015* (2011). This document states that, “although the Army was an early adopter of distributed learning nearly 20 years ago, the program did not fully realize its intended goal of anytime, anywhere training” (TRADOC pamphlet, p.3). The ALM is a learning model that leverages personalized, self-paced instruction, and opportunities for peer interactions. The ALM vision incorporates learner assessment while the learner naturally encounters content and experiences. “The future learning model must offer opportunities for Soldiers to provide input into the learning system throughout their career” as well as account for Soldiers’ prior knowledge and experiences (TRADOC pamphlet, p. 6). Thus, the learning model calls for training the way that people learn naturally—by formal and informal learning experiences in and out of the classroom and across learning platforms, mobile devices, simulations, games, social media, and tutoring systems.

In order to accomplish the ALM vision, adaptive, blended, multi-media deployment and storytelling strategies will be needed to effectively motivate personalized, self-paced training and education. Executed properly, ALM will require a paradigm and cultural shift for most organizations. A transmedia learning campaign designed to support ALM requirements will leverage immersive experiences, tools, and applications that not only interoperate, share data models, and tell their own unique stories as described above but also deliver scalable, cohesive, cross-platform training that is memorable and increases retention. Consider a transmedia learning campaign for a soldier who needs to train anywhere, anytime. In this scenario (see Figure 2) a soldier trains in the field, with different simulators, on different platforms, in the classroom, and with peers (both co-located and distributed). The use of different media allows each individual to engage in the training from different entry points. Training is comprised of interacting with one or more of the following technologies: computer-based training, digital tutors, mobile performance aids, immersive virtual environments, serious games, machinima, graphic novels, peer-generated content, and social media.

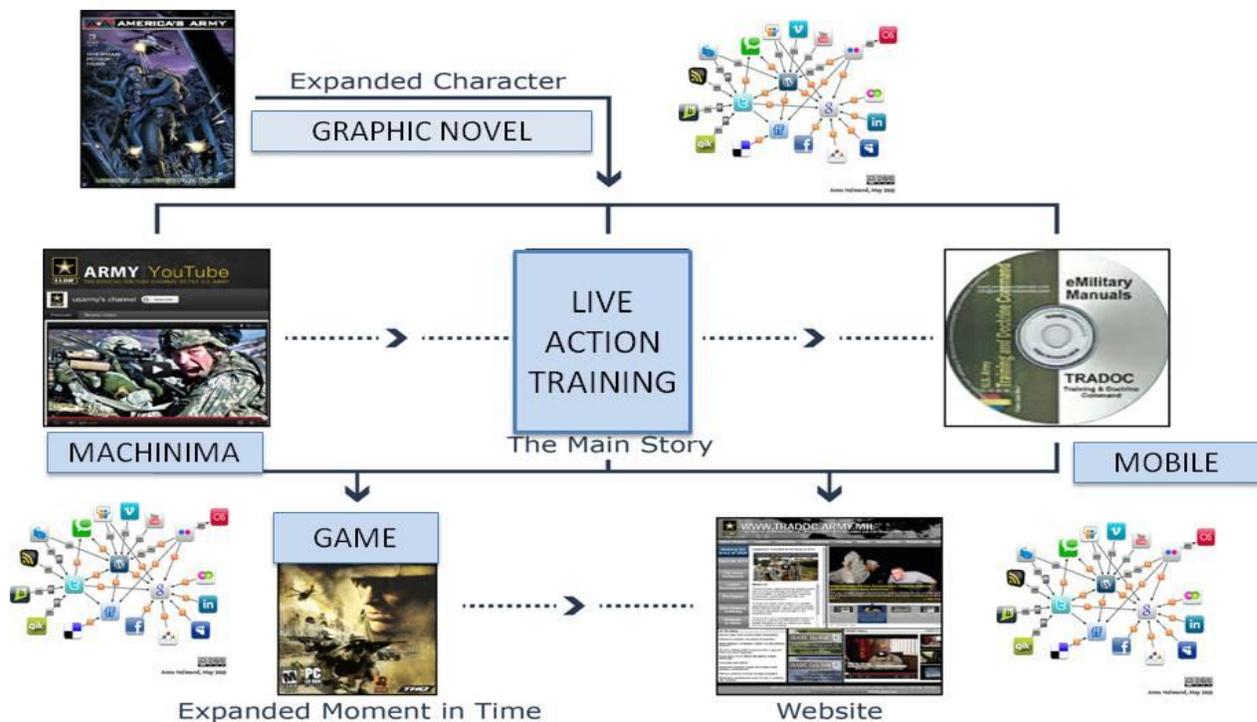


Figure 2. Transmedia Learning Campaign Model (Raybourn, 2012a,b)

For instance, if an individual is learning the art of being a Soldier-Diplomat, they may begin their journey in basic training. The tagline for the main story in this case might be “Do you have what it takes to be a Soldier-Diplomat?” The learner may start at the schoolhouse but the ultimate goal is to demonstrate skill proficiency during live training and in theater. Therefore a Soldier might start by reading about regional culture case studies via graphic novels or by watching videos. This may be followed with a digital tutoring session to build language skills, or a single-player scenario on cultural awareness that is delivered via a serious game. The transmedia learning system could assess the actions of the Soldier as they train and store these data in their learner profile, or learner model. The Soldier can also engage in an alternate reality game on cultural awareness with their peers. They can consult their peers through social media to help remember a detail from the collective training. After the culminating event—live action training at the National Training Center, the Soldier can blog about what they learned in their online journal and share this information with their team. The conversation about cultural awareness and what it means to be a Soldier-Diplomat continues on Twitter. Later, training materials and performance aids can be accessed via mobile. Learning is self-paced, collaborative, adaptive, and/or mediated by their instructors, virtual mentors, and embodied agents (Raybourn, 2012b). Each individual creates content, tracks their own learning, and monitors their own progress. Most importantly, training is delivered via a variety of media, making it more dynamic, accessible, and engrossing. It leverages best practices and advancements from the commercial game industry, delivered and reinforced via transmedia learning.

The example above illustrates how by utilizing a transmedia learning campaign model, integral elements of a training narrative and core story (e.g. Soldier-Diplomat) get dispersed systematically across multiple delivery channels at different times for the purpose of creating a unified and coordinated learner experience. The campaign utilizes all media, not just digital media since much of military training is often conducted face-to-face and especially in the case of dismounted infantry, learning with any media must result in skills that can be transferred to and executed in the real-world. Ideally, each medium makes its own unique contribution to the unfolding of the story and provides a distinct entry point into the story, or core experience. There are opportunities for users to generate auxiliary content and utilize personalized and peer/social learning to the extent possible. In this way, transmedia learning is a scalable, integrated system that allows thousands of learners to explore a consistent, yet interactive, common theme, or message. They explore content individually, or together, through social media, MOOCs, immersive technologies, and online / co-located meetings.

### **How can we assess transmedia learning?**

Assessment is integral to the design and execution of transmedia learning. Measurement of transmedia learning may involve the ability to track user participation, learning, and feedback through the use of activity streams, adaptive assessment technology, and data mining social media for the ultimate development of robust, persistent computational models of learners. One approach to computational modeling might be a life-long learner model. A life-long learner model is a distributed technical framework that provides comprehensive management of personal learning data (Kay & Kummerfeld, 2012). It enables learners to aggregate information about themselves from diverse sources, manage which applications have access to read and/or write information, directly input personal information, and share information with others. Social media profiles, career, education and training history, hobbies, groups, bios, awards, and qualifications may also be captured from sites like LinkedIn, Facebook, and Twitter.

Transmedia learning assessment may involve stealth approaches and learner activity tracking. One way to collect and record learner actions is with the ADL Experience API (<http://www.adlnet.gov/tla/experience-api>). The xAPI tracks and reports a learner’s activities using an <actor> <verb> <object> expression as in “Sarah watched Army Knowledge Online Video X” (Regan et al., 2013). Activity data are then collected, stored, and securely made available through a Learning Record Store (LRS; <http://www.adlnet.gov/tla/lrs>) for post activity analysis, achievement badges, or inputs to learner models. Likewise, third party applications such as games, virtual environments, digital tutors, etc. can publish activity data to the LRS which can then inform computational learner models.

When designing transmedia learning assessment we also should consider the user’s lifestyle, media habits, and goals. Learners should also be given opportunities to co-create, inspect, and set access permissions on content that is shared with others. Sharing stories can create an emergent culture of audience participation that acts as a foundation for the iterative and participatory design of transmedia learning experiences (Raybourn, 2007). For example, social

media can be used for commentary on the training story as it evolves. This emergent property is an opportunity to explore the broader training story in different ways to enrich the core experience. Detailed feedback from peers or instructors, or other sources of reflection could be captured from sites like Tumblr, Facebook and Twitter. Interactive approaches for adding feedback data may be through text interfaces such as chatbots (Kerly et al., 2006) or embodied conversational agents such as 3D avatars (Raybourn, 2004; Morel, 2004; Morel & Ach, 2011).

## **PRELIMINARY EFFORTS: ARMY GAMES FOR TRAINING (AGFT) TRAINING SUPPORT PACKAGES**

A step in the direction of ALM and an example of transmedia learning in use by the U.S. Army links a training support package (TSP) in the form of a graphic novel story to a serious game (Raybourn, 2012a). The graphic novel can be read before and after game scenario training, or training delivered via any methodology. This way the U.S. Army encourages self-paced learning and increased contact with training content. The Program Executive Office Simulation Training Readiness and Instrumentation (PEOSTRI) Games for Training Program (AGFT) and Army Training and Doctrine Command TRADOC Capability Manager (TCM) Gaming distilled 160 complete tasks from TSPs into graphic novels and machinima. Machinima is comprised of video vignettes that are captured from a game environment with game characters, alleviating the need to hire human actors. Graphic novels are stories that are told using text and illustrations, often in comic book formats. Digital graphic novels, as in the U.S. Army example, also utilize interactive links and embedded machinima or videos.

The graphic novels set up the story behind stand-alone scenarios in the serious game and provide interactive vignettes made from in-game machinima that demonstrate the right way to execute certain tasks. The interactive digital system includes instructor and student guides, tactical materials, After Action Review guides, and game scenario files. The use of graphic novels to augment the serious game training allows learners to review tasks before and after training. The graphic novels are reminiscent of the U.S. Army comic book series popular in the 1960's called the U.S. Army Preventive Maintenance Manual published by PS magazine. Since the content of the training support package (TSP) tasks must be accurate, this stylistic approach allows more tolerance for lengthy sections of text as it ties the TSP graphic novel to a format that is familiar. The comic book format used by the U.S. Army also reinforces episodic story elements (McCloud, 1993). This U.S. Army example demonstrates initial efforts to connect content across media in order to provide more adaptive training.

## **FUTURE RESEARCH**

More research is needed on the art and science behind transmedia learning, storytelling, tracking, and assessment. This involves the measurement of behavior change in learners achieved through their synthesis of enduring messages communicated across multiple, stand-alone media platforms which constitute diverse entry points into an engaging narrative (Raybourn, 2013). These behavior changes can be physical and overt, intellectual, attitudinal, or a combination and should result from the synthesis of information across multiple media. Additional research is needed on computational techniques to mine social media data for automated population of learner models that track users' digital footprints as they interact with several media in a transmedia learning system. ADL and Sandia National Laboratories are currently working on an interface to visualize concept clusters of large-scale Twitter activity streams (Fabian et al., 2012). This proof-of-concept could be leveraged to inform transmedia learning assessment by expanding on text analysis algorithms to allow potential learners to browse data obtained from social media outlets to understand their own personal history as well as how they compare to peers engaged in transmedia learning. Additional efforts are currently underway by the author to track transmedia learning in ubiquitous computing environments, including those leveraging sensors in physical settings that stimulate virtual environments.

## **CONCLUSION**

The present paper introduced an emerging concept and new paradigm in education—transmedia learning. Transmedia learning is the synthesis of information conveyed through a scalable system of messages that reveals a narrative or core experience through multiple media platforms, emotionally connecting with learners by involving them personally. This approach is not only consistent with new media training and education goals of the ALM and those of international militaries in general, but it can also provide a practical framework for developing adaptive, media-rich training that presents cohesive and integrated content. In order to train and educate men and women today to become adaptive, agile thinkers, we must embrace new ideas and practices that will shape how we learn

with technology. Thinking about education and training from the perspective of transmedia learning could have a significant impact on how educational experiences are designed and delivered in the future. Transmedia learning is, in and of itself, adaptive. No learner interaction with a transmedia learning campaign should be the same, nor could it be if executed correctly. Transmedia learning evolves with the learner by potentially filling knowledge gaps, enhancing the learning experience by engendering curiosity, and facilitating one's lifelong learning journey.

Transmedia learning has the potential to be one of the most adaptive instructional methodologies under exploration. Not only is the process non-linear, but also social. Transmedia learning leverages human interactions, which are the most dynamic of all. Transmedia learning content must remain fresh and new in order to respond to the rate with which next generation leaders will consume it. Adaptive, stealth assessment techniques will be required to keep up with learners as they shift intellectually, and move physically across media. Transmedia learning will need to scale to train thousands of learners at a time in order to become a true force multiplier for the DoD. Finally, 21<sup>st</sup> Century training and education requires transformational strategies. Transmedia learning goes beyond stand-alone solutions toward more connected, enduring, and memorable experiences. Transmedia learning is an adaptive process that shows great promise in shaping our ability to innovate and revolutionize the way we will learn tomorrow.

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