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New Zealand
**DEFENCE
FORCE**
Te Ope Kātua O Aotearoa

NEW ZEALAND DEFENCE COLLEGE

digital frontier

The Training Technology Newsletter



3

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Release Three



01. // Reflections on e-learning and my role in NZDC and the New Zealand Defence Force

I have been continuing some post-grad study this year and as part of the course we were asked to reflect and synthesise the learning that has taken place through the modules and assignments. The course facilitator posed a set of questions that we could use to frame up our thoughts;

► I used to think that e-learning was:

► Now I think that e-learning is:

► I used to think that e-learning would impact my teaching in the following ways:

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I used to think that e-learning would look like this in 5-10 years' time:

► Now I think that e-learning will look like this in 5-10 years' time:

I thought I would share my responses through this article as I believe learning, and in particular blended learning in the NZDF is on the cusp of significant change. To contextualise that statement, there are sweeping improvements in learning technologies occurring that are not only impacting education, but society in general.

Despite our need to sustain a secure internet environment I believe the way in which we train and learn in NZDF will be impacted positively as these new technologies become available.

My responses below are from a number of personal perspectives and reflect my experience as an educator, my role as an NZDC Team Leader, my experience in working with our 5-Eyes partners and NATO nations in the e-learning/Distributed learning space and the contact I have with industry partners to ensure we maintain best practice....

In a Volatile, Uncertain, Complex and Ambiguous (VUCA) world, the potential use/abuse of data to both enable and/or disrupt learning (or society) is very real.

I used to think e-learning was simply course based, compliance focused and primarily a passive, individual learning experience. My e-learning development team in NZDF call it 'Tick and Flick' learning and we are trying to rid ourselves of this form of on-line experience as learning outcomes are often very poor.

Now I think e-learning is part of a broader suite of online and off-line, digitally enabled learning experiences and artefacts. E-learning is part of a continuum from simple digital tools that can assist in a blended learning context to fully immersive modelling and simulation experiences, potentially enhanced by virtual or augmented technologies.



I used to think e-learning was directed at the single learner with simplistic attempts to personalise the learning experience. Now I think it resides on an additional continuum that extends from a deeply personalised experience utilising Artificial Intelligence, through to a highly collaborative, Connectivist learning experience with a distributed teaching presence rather than an instructor, teacher or tutor.

I used to think e-learning was going to break me as a lecturer. It simply meant more work and that I was available to my students almost 24/7. Blog posts and Tweets after 11pm on a Sunday night were the norm...(sigh).

Now, as an e-learning manager, my role is the promotion of technology and andragogy in support of better blended learning experiences for learners in an organisation that is founded upon face to face, behaviourist instruction.

I love this challenge - every day!

I used to think that e-learning would passively follow technology - more tools, more speed, higher fidelity. Now I believe the relationship between technology and andragogy is critical. Enabling teachers and instructors through models such as TPACK¹ will be critical to ensure e-learning/blended learning becomes the norm, not the exception.

Lastly I have mixed feelings about what lies ahead in 5-10 years. Issues such as Big Data and Learning Analytics are truly confronting and our Defence leaders will need to be informed and prepared to meet the challenges ahead. In a Volatile, Uncertain, Complex and Ambiguous (VUCA)² world, the potential use/abuse of data to both enable and/or disrupt learning (or society) is very real. I am concerned about the lack of skills and knowledge (perhaps naivety?) in this area of education and this is most definitely an area of future interest and research in terms of my own learning journey.

Martin
Martin Boulton
Team Leader
Training Technology



E-learning is part of a continuum from simple digital tools that can assist in a blended learning context to fully immersive modelling and simulation experiences.

Learning for How We Live



According to Bersin by Deloitte, modern workplace learners want learning content that is relevant, focussed, succinct and timely. They don't want to be forced to sit through hours of learning which might be nice to know, but which doesn't meet their immediate need.

Online learning has been around since the 1990s, but with the growth and proliferation of online learning in the workplace, have we succeeded in learning more, or learning better, through the use of technology than we did through more traditional delivery methods? Research would indicate that so far, online courses are not providing a substantially better skilled workforce, and with decades of research detailing how students learn best, the question has to be, why isn't the use of technology doing more to facilitate upskilling in the workplace?

Rather than creating an entire online course that takes two hours to complete, why not chop the learning up into smaller blocks of content that demonstrate how to complete one task.

The way we interact with technology has changed considerably over the last few years. According to Joe Kraus, a partner at Google Ventures, before the smart phone, we would be online roughly five times per day for long periods of time, but now, we're online closer to 30 times a day and in much shorter bursts.

David Kelly, Executive Director of the eLearning Guild sees it like this, **"If you want to understand how technology will change the way we learn, you've got to understand how technology is changing the way we live"**

In the course of your every day life, think about a recent problem or task that you needed assistance with, but nobody was around to guide you. What did you do? Did you sign up to a 90 minute online course on kitchen renovation to work out how to replace that cracked tile in the kitchen? Did you book into a residential course running in a month's time to work out why your pet seemed out of sorts? Unlikely. It's far more likely that you watched a short video on YouTube showing you how to replace that tile, and you Googled your pet's symptoms to find out the most likely cause of his problem.

You used technology to give you the specific piece of information you were looking for and it took you less than ten minutes. You didn't need to interrupt the flow of your day, or wait for another day to get the answer. This is how we learn in everyday life and it is how we expect to find the answers to our questions. To make the process of learning in the workplace mirror how employees learn outside of work we need to create resources which provide focused information that can be accessed just at the right time.



Technology can enable us to do this, to create little packets of microlearning that could make a huge impact on our ability to do our jobs and to accomplish our work tasks without rerouting an entire day. Rather than creating an entire online course that takes two hours to complete, why not chop the learning up into smaller blocks of content that demonstrate how to complete one task. Make the blocks of content available to any user at any time so that learners can 'pull' the content they need at the time they need it. Consider developing a number of short, targeted resources which provide information to the learner at various levels, be that a quick reference guide, or a more in depth tutorial or video. By using technology in a way that is more intuitive for the learner we're more likely to see those resources being accessed more often and as a result, see our operations and processes performed more consistently and more efficiently over time.

Thitippa



Having recently attended the NZDF Modelling and Simulation Symposium in Wellington there was one thing that seemed to be on most industry speakers lips; Virtual Reality. While it may not be in the mainstream yet it is definitely a technology that when it hits will disrupt the education and simulation sector enormously.

When we think of simulation the first thing that usually comes to mind is something like the A109 flight Simulator or the Navy's Bridge Simulator. Something that is life size with racks of computer servers churning out realistic graphics that are fed to projectors, all of which are maintained by dedicated staff. These are highly specialised and dedicated systems.

What we are about to see is growth into smaller and more bespoke simulation using Virtual / Augmented / Mixed Reality (VR, AR, MR). You won't need physical replications of hardware or systems as it's all created online within the software. The agility of such systems could be well suited to NZDF Individual Training and Education. For example, once a medic is finished with first aid training they can take the headset off and hand it on to a firefighter who can practice fighting the fire.

All using the same hardware, in a common, safe learning facility. There will be a training burden on the instructor to adapt such technologies to use in the traditional F2F lesson and not all will be suited to using such an instructional approach. However the fact that these learning experiences can be run by instructors is incredible by itself. By all accounts the barriers to entry for simulation such as cost and technical expertise is lowering day by day. Hopefully leading to innovations in learning activities not previously considered feasible.



This is not intended to replace current investment in high-end simulators, but rather supplement them. Low level simulation such as platform or system familiarisation can be run using VR, freeing up time and resources on the physical simulators for the critical training that needs to happen in fixed facilities.

There are exciting times ahead in the use of educational technologies and through the establishment of a high level steering group NZDF COMD has renewed the commitment to ensuring Modelling and Simulation remains at the forefront.

James

VR

Fact finding task for you.

5

Five reasons to use VR in training

- It's real
- It's hands on
- It's cost effective
- It's safe
- It's measurable

With the power of the Internet at your fingertips go find out why.



Recognition as a basis for understanding in rapid E-learning ↙

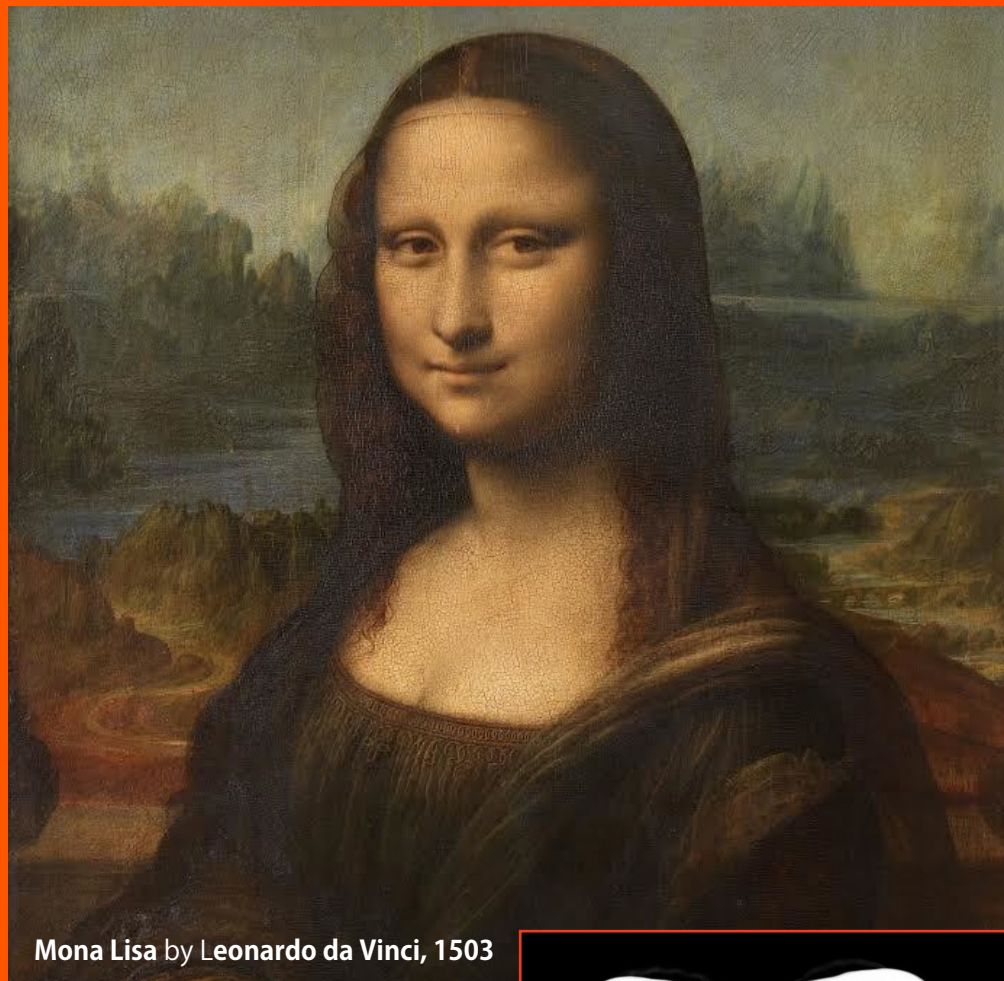
It has been argued that high quality photographic reproductions of authentic paintings have removed the qualities that evoke feelings of reverie and reflection, and are being replaced with simple acts of recognition. In the same way, it could be said rapid digital learning today is more about recognition of content matter, symbols and patterns, than deeper understanding.

In our current age of instant gratification and short attention spans, e-learning providers address the need for immediacy by actively refining and reducing information required for rapid online course material. The online community is quick to point out whether they like or dislike something and thus online eLearning material evolves with impulsive transience.

The challenge for e-learning producers therefore is to provide recognisable information bites catering for the subjective online learner, who has a very busy schedule and does not have the time or inclination to learn more than what is required to qualify.

Chunking down to Hyperreality in e-learning ↙

Chunking down is the process of breaking complex information down into manageable and specific parts to enable clearer understanding of a broader picture.



Mona Lisa by Leonardo da Vinci, 1503

"Hyperreality is seen as a condition in which what is real and what is fiction are seamlessly blended together" as described in Wikipedia.

I explored these thoughts in a recent course I produced, based on Laser Safety Awareness (LSA).

Laser Safety Awareness ↙

The Laser Safety Awareness course (LSA) is designed to identify fundamental laser safety principles, with the aim of providing the learner with pre-requisite generic laser safety knowledge prior to receiving equipment specific training.



This is an important requirement because all laser devices in Defence have been under embargo until appropriate training has been undertaken by the user of such devices.

Lasers can cause damage to your eyes and skin, some more than others ↙

I produced the course employing current e-learning design principles. The information is delivered in a concise, clean, clear and interesting way. Navigation is addressed in an easy and controlled manner. Because of the broad outline of the course the content is broken down into specific bite-sized chunks.

It is sectioned into four parts and knowledge checkpoints are placed at the end of each section. This chunking down of information helps to keep the learner interested and helps to organise their thought processes easier. The learner is required to correctly answer the knowledge checkpoints in order to unlock the next section.

These challenges are intended to keep the learner motivated, much in the same way gaming design creates levels which need to be unlocked. Once all sections are completed, the learner passes the course.



Searching locally and online I could not find practical examples of laser strike. So I created short, five second hyperreal examples using motion graphic, special effects techniques usually seen in movies or television. I recreated recognisable situations that I imagined could be drawn from childhood experiences, such as shining a powerful torch on a wall, through tree-tops or onto a disco ball. After creating these examples I was surprised to find how easily I recognised the dangers of laser light and what to avoid when using them. Although these examples were computer generated, larger than life and 'hyper-real', I readily accepted their fake authenticity and understood the intended learning message instantly.

Evan

Hyperrealism is a powerful and effective technique that definitely has a place in e-learning.

Virtual Reality and Augmented Reality are a perfect example of hyperrealism in action, and these are hot topics in the learning technologies domain at present.

Hyperreality



Sony PXW-FS5

Training Technology has recently acquired new camera kit, the Sony PXW-FS5 to replace the PMW-200 as our main video work-horse. This new camera, while embodying the latest camera technology, is surprisingly compact and light. The modular feature of the kit should enable greater agility for quick reconfiguration for typical 'run and gun' shooting scenarios our Training Visual Producers (TVP) often face when making training video for NZDF.

They say the number of megapixels isn't what's important in a camera but 4K is definitely the new standard that is going to replace HD and FHD in the very near future. This is our first true 4K camera and an important step in future proofing our NZDF video production capabilities.

As well as implementing a new standard in our video recordings, there are some new technological features in this camera which are a big step up from our previous weapon of choice. Video is only as good as the person behind the camera but the tool is also a very important part of the equation. Features like a Super 35mm sensor, wider dynamic range, super slow motion and RAW output function will greatly help in aiding our TVPs capture stunning motion images in the field.



Sony PXW-FS5 - Tech Specs

4K Resolution

Super 35 size sensor

14 stops of exposure latitude

Exceptional sensitivity

Sony's Exmor CMOS design

Record 4K at 60 frames per second

Record 240 frames per second at Full HD 1080p Resolution



To see our TVPs in action and see a sample of Training Technology video production head to the **NZDC/TT homepage**

Sammi & Aaron

Reflecting on ELearning and my role in NZDC and the New Zealand Defence Force - TLTT, Martin Boulton
Page 1 - 2

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Page 3

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Complete

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TT Newsletter
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The Training Technology Newsletter



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