EMERGING TECHNOLOGIES IN LEARNING

by Susan Murphy and Tatum Bisley

What's the future of workplace learning? While there is no sure silver bullet, virtual reality (VR) and augmented reality (AR), gamification, and social learning are all promising new ways to help improve learning comprehension and retention. You›re probably wondering, "Are we talking about gimmicks? Can these advances in technology really do more to help us ensure our training and learning programs are engaging and retainable and resonate with our learners?" We are certainly at a point in society when people are entering our workforce have never known life without finding instructions on YouTube, or asking questions on Facebook or other apps, or privately messaging on WhatsApp. We live in a world full of digital distractions, from buzzing phones to interactive watches. Society is also continually finding new digitally enabled methods to improve our efficiency, increase our work quality, and speed up our output rates.

It can seem exciting and it can also be overwhelming. Before we look at the latest in digital learning, it's important for learning and development professionals to take stock in the rate of change and look at the digital landscape in learning right now. A few years ago, we had instructor-led training and e-learning. Now there is an additional toolbox full of options around learning interventions.

The huge increase in smartphone and tablet use has greatly improved eLearning over the last several years. Video has become a cornerstone of most learning strategies, blending the line between communications and learning pedagogy. Learning professionals have begun to apply neuroscience research, decreasing the use of video and e-learning content to "bite size" in order to create easily digestible nuggets of learning. These smaller snippets allow learners to better retain new information and access content at the point of need, just in time.

Gamification has also come into its own in the digital landscape, building on the social networking we already do. Gamification can include leader boards and scenario choices, from creating a device to playing on the inherent need to acquire awards and badges. It's a great tool no matter the training intervention.

Social learning requires that we trust our people to train each other. It takes an age-old method of learning and scales it across businesses and organizations with the use of technology behavior in the social media landscape. Social learning has grown and advanced over the last couple of years, thanks in part to the explosive growth of social media apps and their associated behaviors.

The newest and, perhaps one of the most misunderstood tools in the learning and development toolbox, is virtual reality (VR). Technically, VR is an immersive experience that uses surround sound video and 360-degree video graphics and animation. It tricks our senses into thinking that what we're seeing and experiencing is in fact real. Put simply, VR is another tool to tell stories in which the viewer actually tells the story to themselves. In most cases, VR can be interactive so the experience is personalized and tailored to each viewer.

The viewer becomes a visitor to his or her own experience in VR. You're no longer just looking at something, as you would be for example if you were watching a video. You're actually there in the moment. All of the sensory connections in the brain increase the effectiveness of recalling information and knowledge. Surprisingly, VR eLearning does not take a lot of time or money to produce. It doesn't have to require a big headset and you don't have to be cut off from the outside world just to experience virtual reality. VR can be extremely accessible.

VR tends to be an umbrella term for four levels of virtual or augmented reality currently available. The first level is 360 video, which is already widely supported in the wider social world. Facebook, YouTube, and Vimeo are currently pushing this new technology, which means that many learners are already familiar with it. Production of 360 video is not dissimilar to other video production, despite the camera itself. Accessing the content requires only a web browser, which can be done on a smartphone, tablet, or PC. The learner is still part of the world around them so they have no physical danger (from trips and falls, for example), and can access the video anytime.

The second level involves a head mounted display, or some form of viewer. From a production perspective, it's very similar to 360 video. However, each eye has its own view which enables 3D. All the learner needs is some form of viewer, which can be inexpensive like Google Cardboard, or somewhat more expensive, like the Samsung Oculus Rift headset. The experience is similar to the 360 video but immersive.

The third level is what most people think about when they think of VR—3D content with interactive hotspots to make it an interactive experience. This has been driven by Oculus, which has recently been purchased by Facebook. HTC Vive and PlayStation VR are other top players in the market. With this level, a learner can physically walk around and visually be in that environment. Gamification requires some sort of PC laptop or gaming system, which is generally tethered by a cable to a high quality LED or OLED viewer. From an experience perspective, this is the ultimate for immersive experience. This is fully immersive, 3D and fully interactive, like you're there in real space. The only downside to this level of VR is that the learner is tethered to a computer.

The fourth level is augmented reality (AR) or "mixed reality", like Pokemon Go. From a production perspective, AR is slightly different from VR, although it still requires volumetric video. Learners can use smartphones and with newer technologies like the Microsoft HoloLens, the AR viewer becomes a full platform that connects to internet WiFi. In AR, the learner is immersed in the real world with augmented 3D objects, completely fully interactive and untethered.

Why do we need to focus on VR, AR, and/or mixed reality? There is an obvious and growing skills gap particularly between older workers and those just entering the workforce. As aging workers move out of the

workforce, learning and development professionals have to find new ways to enable teaching younger workers. Leveraging VR and AR is a way to bridge the gap between learning and doing in a way that's much more rapid and effective, which means that workers can become much more productive much more quickly.

There have already been some compelling case studies that prove VR can be highly effective. General Electric used VR for training in its renewable energy department, for example, and found that an employee with an augmented reality headset showed an increase in productivity by 35.4% over a more traditional learning method.

There are other advantages for learning and development professionals. VR helps learners become emotionally connected to the stories and learning outcomes that you're trying to deliver. It also delivers actionable information. The new sensory connections in the brain, enabled by VR, also help increase retention. They enable learners to reconstruct memories more accurately after the fact, which is an important element in any learning provider's toolkit.

There is no single best solution for every learner or for every learning opportunity. Sometimes, a traditional classroom approach will be best, whereas VR and other new technologies might be a better choice for other lessons and learners. Learning and development professionals will, as they have always done, take into account the newest and best data about learning as they rely on the fundamental truths about how people learn.

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ABOUT THE AUTHORS:

Susan Murphy has over 20 years of experience in learning and development. Susan leads UL EHS Sustainability's professional learning services group, developing and maintaining a library of thousands of courses in support of global businesses' driving safety culture. Susan's career has been focused on delivery of instructor-led and web-based training programs for a wide variety of organizations. Susan's team at UL is always striving to do more and better, hence her intense interest in emerging technologies and learning how they can use them on their team to help the companies that UL supports. She holds B.A and M.A. degrees from the University of Oxford in England.

Tatum Bisley has been in the L&D space for 15 years, spending much of that time focusing on learning in the retail industry, where he implemented the UK's first national social learning. In the last few, Tatum has worked as a management consultant supporting organizations through their digital transformation, from a global recruitment company in oil and gas, to working with Olive Media as their director of innovation. Amongst other projects he is primarily focused on the use of VR, AR, MR in the L&D field and works with other users on how they can match learning interventions to their job. Tatum recently joined Hiup, a new job and training matching app in the B to C market, as the COO. Tatum also works with Olive Digital as their Director of Innovation, with a particular focus on the next big trends in digital corporate learning - virtual reality.