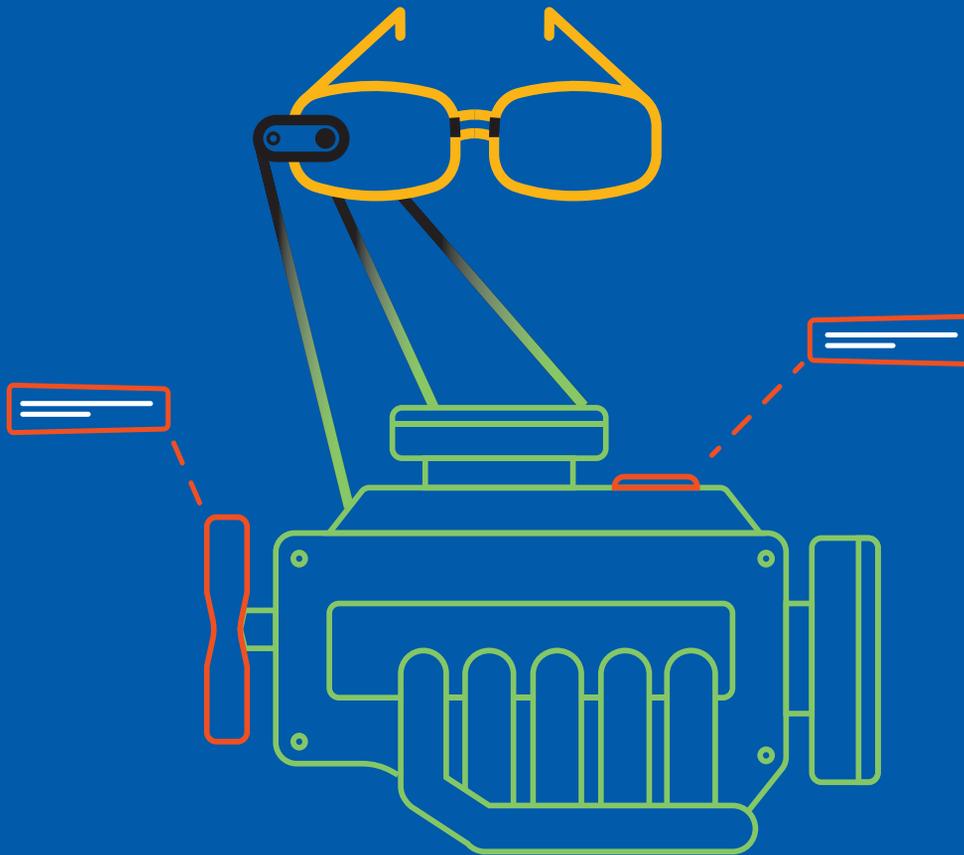


# Seeing the Possibilities With Augmented Reality

Debbie Richards



# SEEING THE POSSIBILITIES WITH AUGMENTED REALITY

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## AUTHOR

### Debbie Richards

Debbie Richards, president of Creative Interactive Ideas, supports talent development clients with technology challenges. She works with organizations to design, develop, and deliver technology-based adult learning programs with measurable impact. Passionate about working with and mentoring other learning professionals, she is a past president of the Association for Talent Development Houston Chapter and a past ATD national adviser for chapters. She is the 2019 ATD Technology Conference Advisory Council chairperson.

### Content Manager, Learning Technologies

Justin Brusino

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Patty Gaul

### Managing Editor

Joy Metcalf

### Graphic Designer

Shirley E.M. Raybuck

**W**ithin the L&D profession, there's a lot of misunderstanding about what exactly augmented reality (AR) is, what it can do, and how individuals and companies can implement it. This issue of *TD at Work* is meant to clear up some of those misunderstandings and help you get started incorporating AR into your learning programs.

AR is a powerful tool that can help your team and organization achieve learning goals in a meaningful and hands-on way. It can be effective in creating learning solutions that immerse individuals in whatever they are learning. Instead of interacting with a computer at a desk (and some employees don't even work on one), AR can help learners interact with the learning content directly. This increases knowledge retention, because learners are engaging with the world around them. They are pulling content—rather than the content being pushed at them—which gives them a sense of control.

Because of AR's benefits, organizations across the spectrum—from healthcare and government to manufacturing and retail—are

beginning to use it on an increasing basis. These organizations are giving their employees information they need to increase performance and learn where they are. I'll delve into how that works in this issue.

To give you a sense of AR's impact and footprint today, here's some food for thought: Worldwide spending on AR and virtual reality (VR) is forecasted to reach \$17.8 billion in 2018, an increase of nearly 95 percent over the \$9.1 billion spending that International Data Corporation, a global market intelligent firm, expects in 2018. A new update to International Data Corporation's *Worldwide Semiannual Augmented and Virtual Reality Spending Guide* shows that worldwide spending on AR and VR products and services will continue to grow at a similar rate throughout the remainder of the 2017-2021 forecast period, achieving a five-year compound annual growth rate of 98.8 percent.

Leaders at the forefront of using AR are solving business problems and creating new learning opportunities. One of the primary reasons AR has taken off is because many organizations already have some of the key hardware and software components on hand. Many of the first enterprise-focused AR experiences have simply used existing technology, such as smartphones and tablets.

In this issue of *TD at Work*, I will:

- clarify what AR is, what it can do, and when it's appropriate to use
- walk through a step-by-step process for designing successful AR learning
- introduce ADDEDD, a new model akin to ADDIE for AR
- review tools and applications to consider as you start
- showcase how various industries currently use AR.

## What, How, and Why

Before discussing what AR can do and how you can use it, I want to be clear about what AR really is.

AR uses codes to overlay virtual elements—such as instructions or video that show users steps, processes, or directions—on real-world objects. Most AR technology is accessible through applications on smartphones and tablets using the devices' camera.

Pavlo Bashmavakov, research and development lead at Intellectsoft, describes how AR works:

- An employee directs his AR-enabled device (smartphone, tablet, glasses, or headset) at an object.
- The software scans the device using computer vision technology.
- The AR-enabled device downloads the information about the scanned object from the cloud.
- AR gives the user a view of real-time data (available via a digital twin of the AR software, stored in the cloud) of the object and enables the user to control the data from a touch screen, through voice, or via gestures.

Unlike VR, which is entirely in the virtual world, AR uses the existing environment and adds information to it, hence *augmented* in its name, to make a new artificial environment. Rather than flipping through a manual or even googling instructions or answers to a question, a user can simply point the AR code on the real object and see instructions or information appear over the object. This not only adds to the user experience but also gives the individual control.

For L&D, you can use AR to supplement a current learning experience or use it to create entirely new ones. For example, you can use AR to create job aids that come to life when learners discover additional content. You can also create interesting group activities that get learners up and moving and working together while they scan various items to obtain new knowledge and solve puzzles.

Rob Bredow, senior vice president, executive creative director, and head of Industrial Light & Magic, says,

### Mixed vs. Augmented Reality

You may have heard the term *mixed reality*—or *hybrid reality*, as it is sometimes called—tossed around in the same context as augmented reality. The term is often used interchangeably with augmented reality. Like AR, Microsoft says, “mixed reality is the result of blending the physical world with the digital world.” But according to the *Harvard Business Review* report *Mixed Reality: A New Dimension of Work*, mixed reality is an umbrella term for the “technology ranging from virtual reality to augmented reality.”

“Augmented reality is really interesting because it allows you to stay engaged with the world around you while also adding components to it. And it can be an increasingly social experience, which is really important. You can do that in virtual reality, but in augmented reality it even has more potential because you can still see the people around you and interact with them.”

## Why AR Now?

Workforce demands are changing rapidly as new technology emerges. It's essential to consider how you can offer training when and where employees need it most.

Workers don't necessarily come to an office and sit at a desk to do their jobs. In many cases, AR enables you to take a nimble, innovative approach to training employees, giving them relevant information in real time. Employees are increasingly demanding technology—including AR—to improve their work environment and performance.

Neuro-Insight, a neuroscience-based marketing research company, has been working in partnership with advertising agency Mindshare UK and Zappar, a creator of AR and VR platforms, on *Layered*—a first-of-its-kind study into AR's consumer, neurological, and brand impact. This research shows that AR drives high levels of attention—45 percent higher than TV and online—and all-important memory encoding at 70 percent higher than other digital media.

Put simply, if you want to engage and connect with learners, begin to incorporate AR into your learning programming.

## AR in L&D

Through AR, people experience extraordinary things in their everyday lives that are impossible or hard to achieve otherwise. As Brandon Carson writes in *Learning in the Age of Immediacy*, “The use of VR and AR in learning will eventually become the standard tool for training because of authentic use cases and real-world applications.”

The possibilities of AR in learning are significant and provide new ways for interactive learning. Learners will no longer need to search for content

## Future Workers Will Expect AR

A 2016 Penn Schoen Berland study interviewed 3,800 global employees—including Millennials—about technological change in the workplace. The results reveal what Millennials expect and want from employers.

- Millennials globally are becoming increasingly dissatisfied with workplace technology that is far behind what they have in their own homes.
- They are more likely to quit a job in a workplace with substandard technology.
- Eighty-two percent of Millennials state that high-tech offices will influence their decision about taking a new job.

But the biggest overall reason that Millennials want augmented reality or virtual reality products in their professional lives is that they believe these technologies will increase their productivity. This study reported that 66 percent of Millennials believe that VR for training purposes will enable them to train from anywhere and on their own schedule. And AR and VR training experiences—because of their realistic nature—provide a realistic experience for those involved in the training programs.

because with AR it is at their fingertips. And because it is in the cloud, it is updated in real time so they never have to worry about lacking the latest instructions, decreasing frustration.

The visual content associated with AR is further beneficial in the learning sphere. Depending on the use, learners won't have to read and interpret directions because AR will show them the steps to complete a task. All these possibilities engage learners with the content.

## AR Technology

Prices for some AR technology—that is, headsets or glasses—have been high until this point and have

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