BRELLA LEARNING

HOW TO HANG WITH VR

THE NEW KID ON THE TRAINING BLOCK

A PRODUCTION AND VR DEVELOPMENT PARTNER GUIDE

So you know you want to incorporate virtual reality into your training. Everybody wants to bring in the new kid and have virtual reality (VR) on their team, because the tech is innovative, and memorable.

VR training experiences have a proven higher retention rate,[1] with retention gains reaching 75% in comparison to standard video, eLearning, or textbook training. VR simulated training has made its way into retail stores, car assembly factories, police academies, all the way to Olympic athlete training.[2] The possibilities are endless.

But how do turn your VR training idea into reality, and who do you turn to?

This new kid isn't like any training you've worked with in the past. VR is not a one-size-fits-all delivery method, nor is it built for quick turnarounds. But here's the *real* reality. It's an investment, and investing in something implies longevity and appreciation in value. Choosing to incorporate VR into your training curriculum or course is not a choice made lightly, nor should it be.

This guide is designed to help you set realistic expectations for the VR production process, know what to look for in a great VR development partner, and understand the process of production planning for your next VR training module.

1   Gaudiosi, John. "Here's Why Hospitals Are Using Virtual Reality to Train Staff." Fortune. August 17, 2015.

2   Cockrell, Will. "Virtual Reality Training Turns Olympic Triathlon Course into Motor Memory." Popular Science. August 11, 2016.

YOU GOT THE RIGHT EXPECTATIONS

Before diving into this endeavor, an expectation adjustment is important. Finding out whether VR is right for your training needs, and what to expect before, during, and after the production process isn't something you can search around on the internet for (well, it *is*, but it won't be the high touch interaction you really need to have). That requires contact with a VR development partner. Prior to reaching out to one, it helps to establish what you're wanting to accomplish.

Case in point: One company that had clearly established goals and expected outcomes is Volkswagen. They were one of the first companies to fully embrace immersive VR training, and are a prime example of how VR's benefits and their goals perfectly aligned.

They used HTC VIVE headsets with VIVE wands so employees could train in car assembly and carry out the tasks with the wand as if they were handling actual tools. Their VR setup[3] unifies the car assembly and selling process at factories and showrooms all over the world and allows employees to collaborate with one another between brands and locations, in real time, enabling daily knowledge transfer and giving all employees the same hands on training through VR.
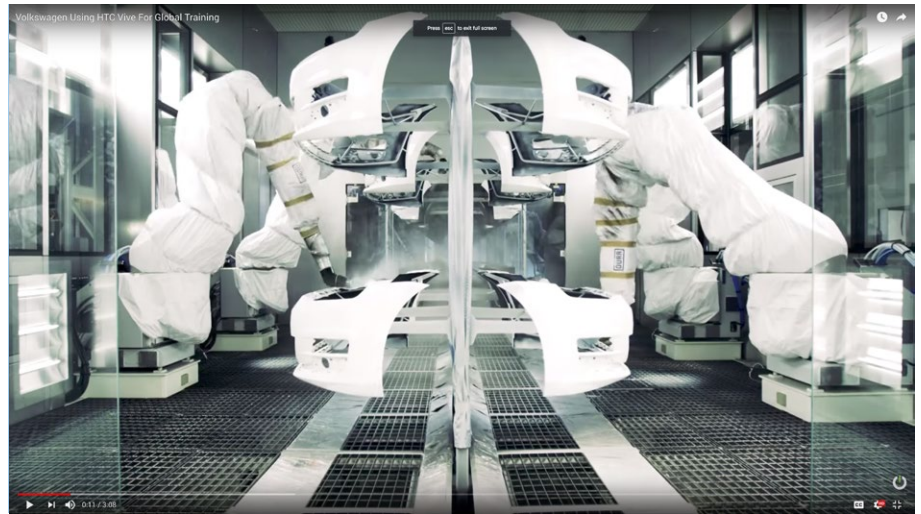
Volkswagen's VR Training through HTC VIVE

To make this happen, the training developers at Volkswagen had a clear set of training goals and an understanding of what they wanted this training to accomplish. Before you commit to incorporating any sort of VR application into your training, you need to define your training goals. Is your intention to cut down on face-to-face training, which may include travel and accommodation costs? Or to unify your training across the board, so each locations' employees are receiving the same standardized training? VR is excellent for this, especially concerning manual tasks where the

physical repetition during an immersive VR experience can help cement those tasks into muscle memory before moving on to the real thing.

Once you figure out your goals, then you need to find the right VR development partner.

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3   *Volkswagen Using HTC Vive For Global Training*. YouTube. July 6, 2017.

PLEASE DON'T GO
FORWARD WITHOUT THE RIGHT
VR DEVELOPMENT PARTNER

New undertakings like this are less daunting when you have a mentor or guide to steer you along the way, and that's where a VR development partner comes in. These mythical creatures live in production houses, consultation practices, and companies that specialize in VR. Virtual reality isn't just their wheelhouse—it's their passion. Here's what you're getting when you work with a VR development partner.

A VR Development Partner's Role Is To Help With:

ALIGNING YOUR TRAINING GOALS

- A VR development partner will help you align your goals to figure out the best way to accomplish them with VR—and if that's even possible at all. Not every training need can be solved by virtual reality. It doesn't serve you to spend the time, energy, and funds on a VR training when this delivery method doesn't serve your training need. And if it's a good match, they will help you deduce the right delivery method and VR experience that would maximize usability and budget.
- For example, do you want to convert existing training, or do you have an idea you need help to create? It *is* possible to convert an existing training into a VR training, but that also requires existing assets, such as 3D models or environments that are prime for a 3D/VR conversion. A preexisting flat video isn't going to translate well on its own, nor would it make an interesting VR experience. An idea can be developed, cultivated, and molded into an engaging, interactive VR experience from the ground up.

PROVIDING AN EDUCATION

A great VR development partner will help fill in the blanks regarding what VR does, how it's useful in training, and how it suits *your* needs. It's not your job to know the secret world of VR technology, production, and application—that's your partner's job. They will help discern the value of the project, navigate the tech, and show you how to apply that tech to your training.

NAVIGATING YOUR CHALLENGES

Every project has unexpected hiccups, and a VR development partner will help you anticipate potential challenges. They will make sure that any potential issues are addressed in the planning stages to save you on time and expenses during the production process.
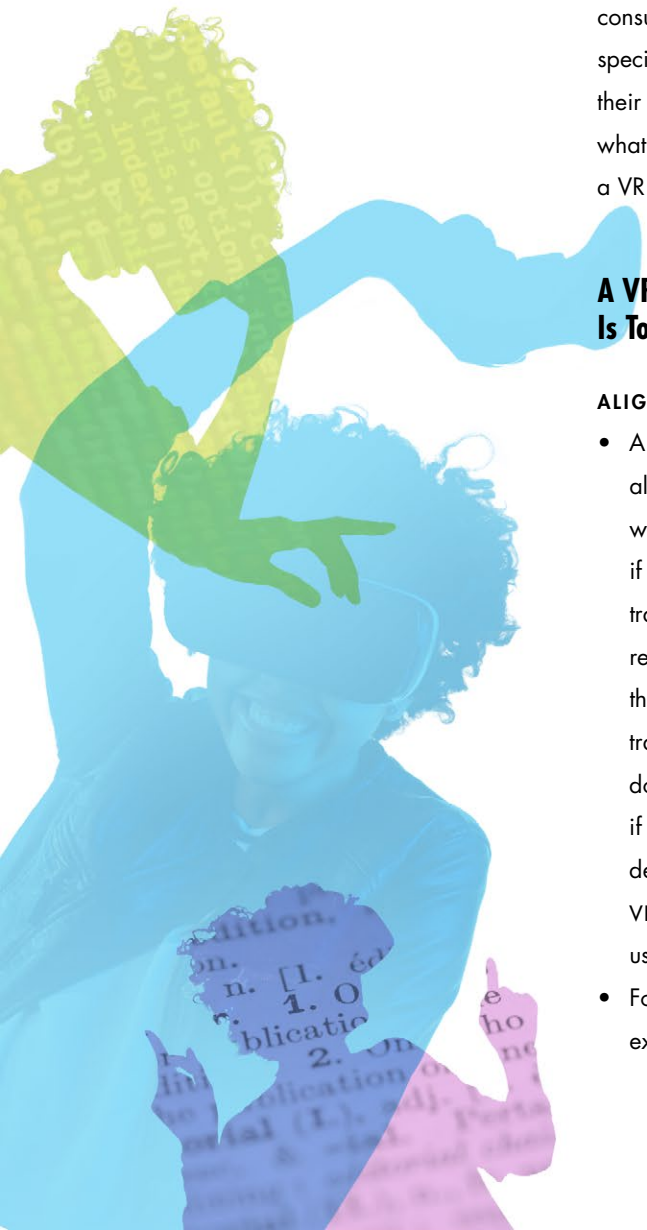
How Do You Find The Right VR Partner?

The right VR development partner will set realistic expectations. As we mentioned before, not all trainings are suited for VR. Your partner will tell you whether this is the right investment for you and if there is inherent value to the training in this format. The training need must meet VR benefits.
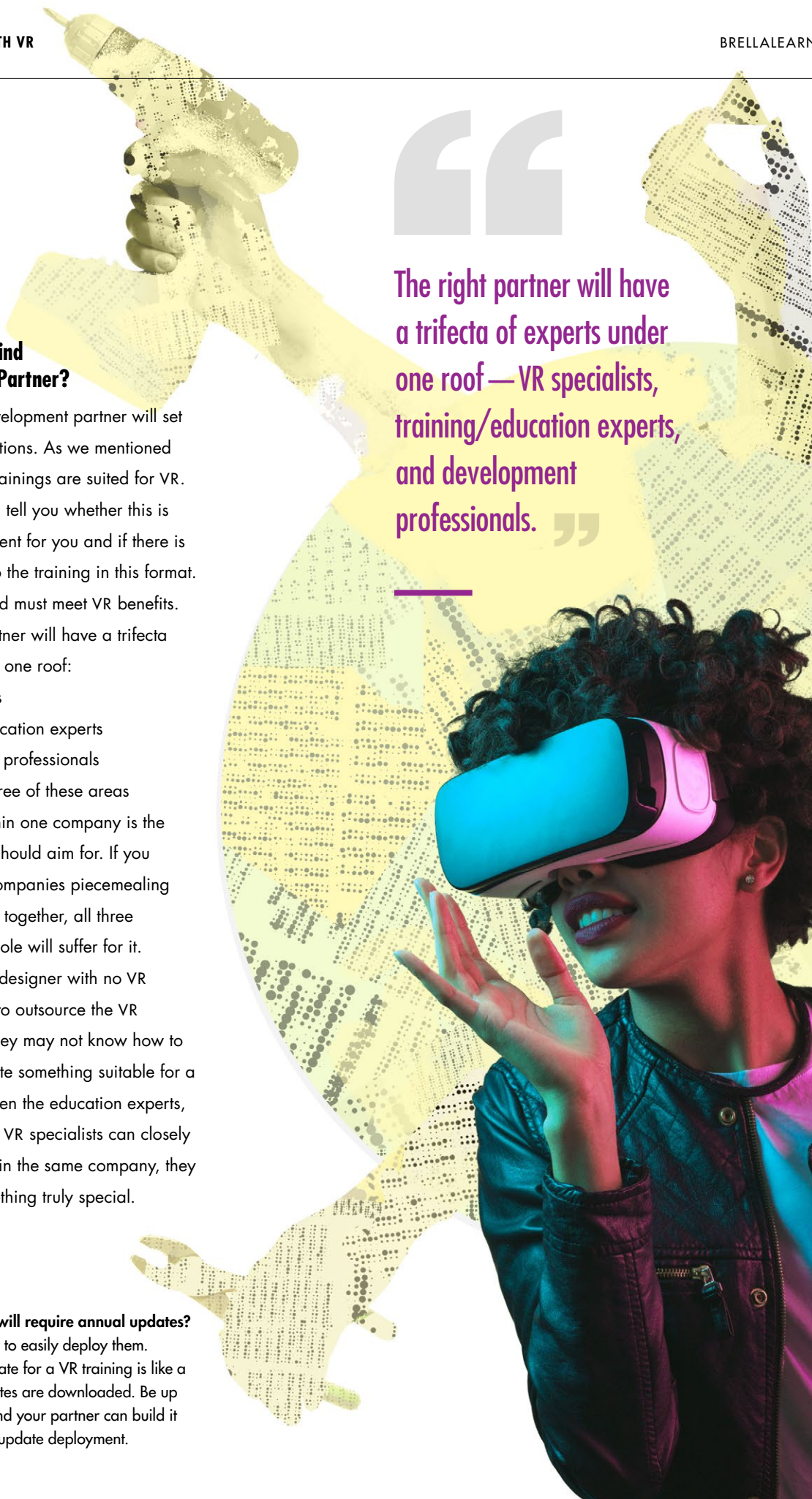
The right partner will have a trifecta of experts under one roof:

- VR specialists
- Training/education experts
- Development professionals

Having all three of these areas represented within one company is the sweet spot you should aim for. If you have different companies piecemealing your VR training together, all three pieces of the whole will suffer for it. An instructional designer with no VR experience has to outsource the VR elements, and they may not know how to design and create something suitable for a VR training. When the education experts, developers, and VR specialists can closely collaborate within the same company, they can create something truly special.

Got training that will require annual updates? It needs to be built to easily deploy them. Deploying an update for a VR training is like a video game; updates are downloaded. Be up front about this, and your partner can build it correctly for easy update deployment.

> The right partner will have a trifecta of experts under one roof — VR specialists, training/education experts, and development professionals.

STEP BY STEP
THE VR PRODUCTION PROCESS

Now that you've invited the new kid to your lunch table and you're planning to use VR for a training (good choice), the production begins.

What to Expect During Pre-Production

Pre-pro planning is the most important part of the VR process, compared to traditional video. If things aren't planned out properly in pre-production, it's not easy—or cheap—to fix in post-production.

DEFINE THE SCOPE Scope, delivery options, and development platforms must be ironed out. Everyone involved in the approval process needs to sign off on each step and have their say before production starts. If you start developing in one platform and switch to another, it's back to the drawing board, because the development process is different. For instance, changing the delivery method from a mobile-app based training through Google Cardboard to an Oculus Rift interactive experience puts the project out of scope. Each platform has its own software development kit. It is crucial that you know how you want to deliver before production begins, and then commit to it.

Here's a quick rundown of the types of VR experiences, platforms, and requirements to get you thinking about scope:

TYPE OF EXPERIENCE	PLATFORM	ADVANTAGES	DISADVANTAGES
PASSIVE	• YouTube/Vimeo • Any VR glasses/Device • Computer/Tablet/Phone	• No extraneous requirements • Can run on most devices • Most budget-friendly • Does not require VR headset/device	• No way to control the experience • No interaction • Not as engaging
INTERACTIVE	• Google Cardboard (compatible with all phones) • Google Daydream • Samsung Gear (only compatible with Galaxy phones) • Computer/Tablet/Phone	• More engaging with click and gaze-activation • Provides opportunity for supplementary educational or training materials • Simplified controller interactivity with Samsung Gear • Does not require VR headset/device	• YouTube and Vimeo do not currently support interactivity and require third-party solutions for an interactive experience in the web browser
ADVANCED INTERACTIVE	• Oculus Rift • HTC VIVE • Other high-end VR devices with controllers	• Most immersive experience • Interaction with objects in virtual environment (picking up, grabbing) • Enables higher learner retention • Allows for users to safely train in high-risk or highly technical industries	• Requires a high-end computer that meets the specs needed to run the program • More up-front costs with possible back-end savings

> **Take advantage of the interactivity of this medium, and steer away from a sequential, linear narrative. You're not tied to that anymore.**

For a vivid example, join Brella's Video Production team on a VR 360° tour of the Baha'i House of Worship—one of the Seven Wonders of Illinois.

SCRIPT YOUR CONTENT This is where the education leg of the trifecta tripod is essential. Once you've identified the right training concept, your VR development partner can help you find engaging ways to present that content in VR. It's not just about a flat script anymore—you need content that draws and focuses attention visually, audibly, and actively. Take advantage of the interactivity of this medium, and steer away from a sequential, linear narrative. You're not tied to that anymore. VR gives you the freedom to dive deeper, dispense nuggets of information through the activity, and grant your viewer the freedom to control the sequence of their learning experience. Since the learner is driving the experience, you need to think of scripting in a series of loops or parallel experiences that can be accomplished in any order.

Think of alternative ways to visually (and subtly) guide your learner through the experience, such as through lighting or sound to draw their attention. Visual and audio cues will enhance the experience, and when paired with textual cues, can help both you and the learner by providing some direction in the narrative.

PLAN THE PRODUCTION Think of the planning process as a mixture of video storyboards and live event coordination/ logistics. VR shoots are more like performance art or live theater and need to be planned as such. If a video crew is shooting live video for your 360° video or mobile VR app, shoot locations must be scouted, rehearsal time allocated in advance, and day-of logistics planned out to eliminate intrusions on location.

PLAN THE DEVELOPMENT TIMELINE
Virtual reality training courses are not made in a matter of weeks. If you need something converted or created like yesterday, VR is not the most immediate solution. If you want to craft something impactful, it's going to take time. Depending on the complexity of the training, development could take anywhere from 3–6 months. Think of it like a pearl—pearls take time, and layer upon layer of nacre, to form into gorgeous gems. If you rush that process, all you have is a broken piece of shell.

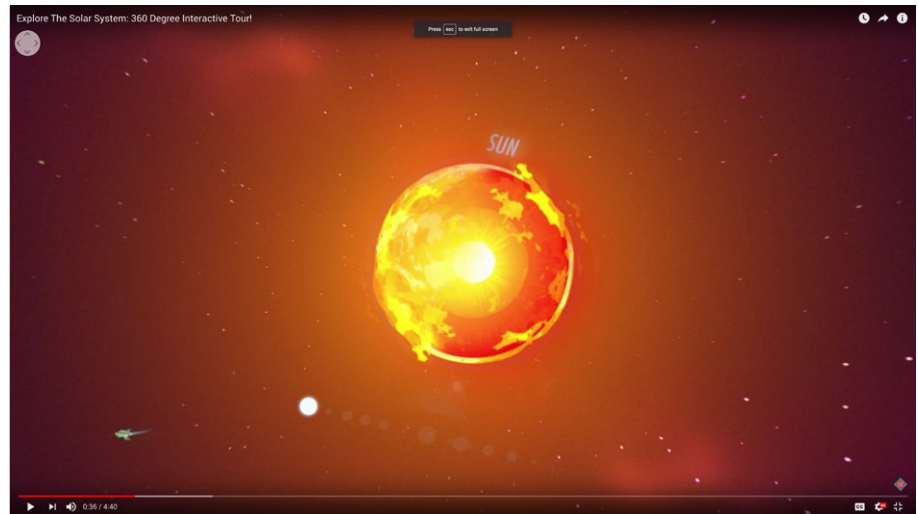> "Account for a variety of audience members and anticipate what they might look at … and try to stage your animation in a way that allows them to progress through the story."

ANIMATION SUPERVISOR, REEL FX

Explore the Solar System: 360 Degree Interactive Tour. This video is part of *Thought Café +*, a collaborative animated series from *Crash Course Astronomy*.

What to Expect During Production

The production phase depends on the nature of the VR training. If it requires live video, the production process will be different than if you're designing a graphic or 3D-based experience.

SHOOTING Shooting live video for VR doesn't allow for the crew to be behind the camera—the crew has to hide, or become integrated with the scene. When we filmed for our Baha'i 360° video,[4] for example, our crew hid in the bushes to stay out of the shot, or were "visitors" in the temple. If you have talent speaking in the shot, it's best to hide a wireless mic to get clean audio, or find a way to hid it behind a prop (like a laptop) or under a table.

If you want spatial audio, which provides the listener with the perception of a three-dimensional, life-like space, you will have a different setup, as we did for Baha'i. Instead of relying on the camera's built-in audio, we set up two mics in opposite directions on top of the tripod to capture surround-sound audio.

Anything filmed during shooting is essentially the paper you're turning in for a grade—you can't go back and make changes. There are no different camera angles to switch to, so what is filmed during the shoot day is what you have to work with. If someone missed a cue or flubs a line… you stop and start over. There are no cutaways to reaction shots like traditional video. Transitions and scene fades can be worked in later during the production process to cut between scenes, but VR is one take/one shot.

ANIMATION/GRAPHICS Animation is great for visual flair, and helps to tell a story in a traditional 360° video, such as the interactive tour of the solar system above.[5] This format gives the viewer a reason to look around, and you don't have to worry about filming logistics or a camera and crew. However, you now have to think of your viewer as the camera operator—they're the ones deciding what to look at next. According to an animation supervisor with Reel FX,[6] you need to "account for a variety of audience members and anticipate what they might look at… and try to stage your animation in a way that allows them to progress through the story."

The above principles apply to shooting VR and overlay graphics, as well; staging the footage and any graphic overlays to help progress the story is just as important.

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4   *Wilmette, IL - Baha'i Temple - 360 VR.* YouTube. August 31, 2016.

5   *Explore the Solar System: 360 Degree Interactive Tour.* YouTube. February 12, 2016.

6   Failes, Ian. "Animation in a VR World: How Is It Different and How Is It The Same?" Cartoon Brew. April 12, 2017.

What to Expect During Post-Production

For video, there can be different levels of polish depending on your needs, but the aim is for a seamless look, with no visible stitch lines to take your viewer out of the experience. While you can leave in stitch lines or the nadir (the area at the bottom where the camera is; most people just put in a logo to cover it up!), we personally prefer to leave the user with a seamless stitch. This allows the user to immerse themselves in the VR without being taken out of the experience because of less than ideal cleanup.

For animation, there are also different levels of detail and quality. Much like the approach to the type of training, graphics and animation also have different approaches, which reflect the overall strategic goals of the content. These are some of the approaches you could take:

- Simple graphics and animation that are overlaid onto live action footage to support the messaging
- More elaborate 360° graphics and animation that help tell the story in a more visual way
- Everything built in 3D

When it comes to programming, there is no easy workaround with this development aspect of a VR training module (in other words, you need this expertise for a fully immersive interactive experience). A good VR partner with development capabilities is crucial if you want a quality product that contains these programmed features:

FEATURE	FUNCTIONALITY
Gaze-activated simulations	Using your eyes to activate hotspots
Controller-driven simulations	Using your hands and switches to activate movement and hotspots
Advanced conditional events and triggers	Certain conditional events require advanced programming, and are not covered in conventional 360° video creators
Gamification	This is pretty self-explanatory. Make it engaging and fun!

These additional layers to the experience take time to develop, but their inclusion heavily influences the learner experience and how effective the VR training is.
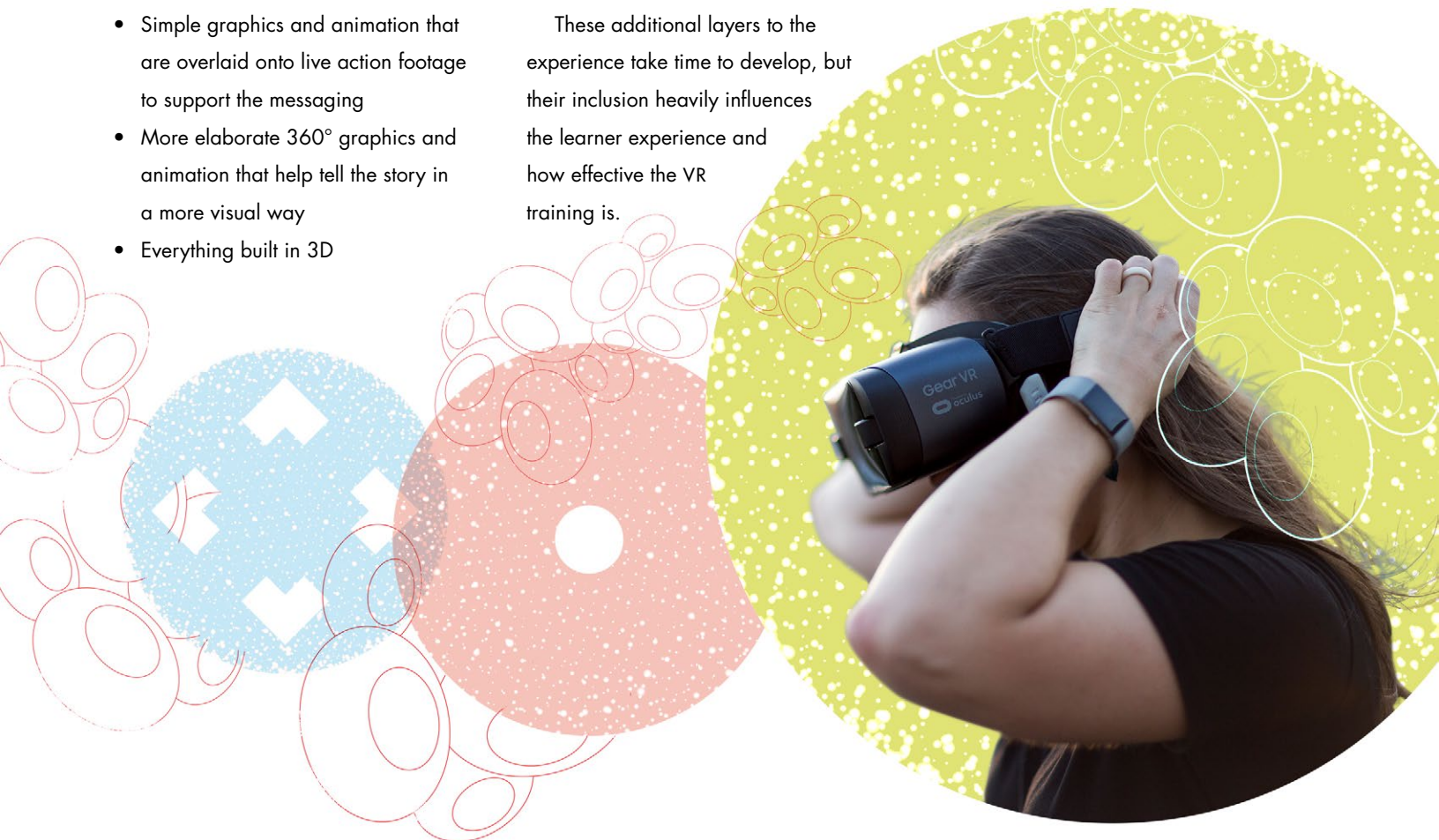
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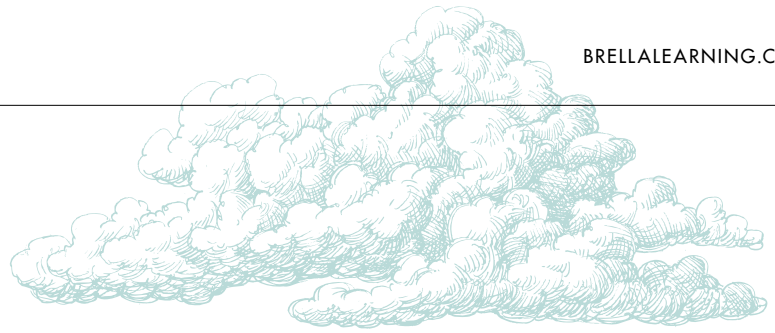
Virtual reality isn't just set to change how we learn, it's changing how well we retain our learning. Trainers in all industries know that one of the biggest issues is learner retention well after the training is over… and VR has proven benefits surrounding skill retention in many different fields, such as medical, skilled labor, and aviation.

If the expense still makes you cringe, think about the costs attached to in-person training—travel, hotel accommodation, employee hours—and then compare to see what you could really be saving by developing a consistent VR training accessible to employees around the globe, from wherever they are. Hospitals such as the Children's Hospital L.A. are already seeing training cost reductions[7] by switching from expensive training mannequins to a virtual trauma center through VR headsets. You're creating something immersive, interactive, and one-of-a-kind. You can't put a price on the ability to help people employees retain their crucial skillsets.

Investing in this type of training takes careful planning well in advance of production, a budget that can carry the weight of doing it right, and the right guide to help you get the most value for your training need. If you take nothing else away from this whitepaper outside of obscure *New Kids on the Block* references, take away the importance of connecting with and learning from a stellar VR development partner for your VR course creation. Your employees will thank you with a robust retention rate of their skills. ●

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