



TECHSHOW2020

Seeing is Believing: Virtual Reality Preparedness

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January 6, 2020



VR: IMMERSIVE VIDEO AND 3D EVIDENCE

By Kenton S. Brice and Matthew Stubenberg

Introduction

Theorizing about the use of virtual reality in the legal industry is nothing new.¹ However, the widespread availability and low cost of current virtual reality systems is quickly moving the use of virtual reality in the legal world from the theoretical to the practical. In 2016, three desktop virtual reality systems were introduced on a consumer level that made virtual reality readily accessible to most.² Since then, second generation systems have been created, as well as increased platforms for viewing content.³ In addition, 360 cameras, 3D scanners, and drones are becoming more mainstream, making content creation much easier for the general public.⁴ From the massive to the miniscule, legal professionals now have the capability to present a variety of types of evidence or participate in the litigation process through the use of virtual or augmented reality technologies without having to invest tens or hundreds of thousands of dollars. As the technology continues to improve, attorneys must stay abreast of these innovations and explore how it can be used in practice. Law schools are starting to incorporate these emerging technologies into curriculum and projects to help provide basic understandings of the two main types of content for training the next generation of legal professional.

Immersive Video

The easiest introduction for the legal industry to virtual reality is immersive video.⁵ While not truly “virtual reality”, immersive video, also known as 360° video, takes advantage of the virtual reality system hardware to provide a truly immersive video experience. Immersive video places the viewer into the middle of a video scene, where the video and audio exist in a 360 degree sphere around the viewer. These immersive videos have a wide range of application in the legal field, from experiential teaching in a courtroom to recorded depositions to the next generation of police body cameras.⁶

Capturing immersive video is also much more simple and cost efficient than creating 3D models in virtual reality (although, as detailed below, is becoming simpler and more cost efficient as well). For immersive video, most consumer cameras cost under \$1,000, with most under \$500, and feature one button capture or a paired mobile application for to control lighting settings and capture.⁷

¹ In 1992, prosecutors used a virtual reality recreation of a crime scene to prosecute Jim Mitchell for the shooting death of his brother, Artie Mitchell. Mary C. Kelly & Jack N. Bernstein, *Virtual Reality: The Reality of Getting It Admitted*, 13 J. MARSHALL J. COMPUTER & INFO. L. 145 (1994). In 1995, CNET created a virtual reality recreation of the O.J. Simpson murders. <https://www.cnet.com/news/cnet-vault-oj-simpson-murder-computer-simulation/>

² Oculus Rift (www.oculus.com), HTC Vive (www.vive.com), and Playstation VR (<https://www.playstation.com/en-us/explore/playstation-vr/>) all came out in 2016.

³ Will Greenwald, *The Best VR Headsets for 2020*, PCMag.com, 2019 (last accessed Jan. 4, 2020).

⁴ “LIDAR, which stands for Light Detection and Ranging, is a remote sensing method that uses light in the form of a pulsed laser to measure ranges (variable distances) to the Earth. These light pulses—combined with other data recorded by the airborne system— generate precise, three-dimensional information about the shape of the Earth and its surface characteristics.” <http://oceanservice.noaa.gov/facts/lidar.html>.

⁵ Immersive pictures are also available, known as 360 photos.

⁶ See BodyWorn’s Smart Scene 360 camera system (<http://www.bodyworn.com/smartszene-360/>).

⁷ OU Law currently has four 360 cameras: Garmin VIRB 360 (<https://buy.garmin.com/en-US/US/p/562010>),

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What OU Law is Doing with Immersive Video

OU Law is currently using various immersive videos in its legal curriculum, including professionally produced videos and custom created content. With professional produced videos, our faculty are delivering high quality, documentary style content for our students. The most popular video so far has been *Clouds Over Sidra*,⁸ an immersive video experience of a Syrian refugee camp in Jordan, narrated by a twelve-year-old Syrian girl. Professor Evelyn Aswad has used this video in her International Human Rights courses in hopes of increasing students' levels of empathy for displaced persons. Since our students cannot travel to Jordan on a regular basis, and OU Law cannot send a camera crew to massive refugee camps, having this type of professionally produced content is an easy way to transport our students to experience Jordan in a more tangible way than a regular video or a textbook can.

OU Law students have also come forward asking for curriculum-oriented videos to be included in OU Law's offerings. Hannah White ('19) served for a summer in Thailand for the International Justice Mission ("IJM"). While there, she learned of a new 360 video project that IJM was involved with, documenting IJM's efforts in freeing indentured servants in India. Similar to the *Clouds Over Sidra* video, *The Hidden*⁹ has provided OU Law students with the ability to experience a human rights crisis with as much proximity as possible without leaving the College.

In addition to curating professionally produced content, OU Law is creating its own immersive video content in multiple contexts. As early as December 2016, after only two months of having the virtual reality systems and 360° cameras, then Associate Dean and Professor of Law Brian McCall started exploring how this technology could enhance his Transactional Law Practicum class. Prof. McCall took a Nikon KeyMission 360 camera to capture student presentations of a mock merger at various law firms in Oklahoma City. By placing the camera in the center of the conference room table, Prof. McCall was able to capture the students' presentations and the attorneys' reactions all at the same time, enabling future students to critique the presentation from all perspectives. These early videos showcased the possibilities of using immersive video in a non-litigation setting using 360° cameras to capture an entire boardroom.

Since that early video, OU Law has expanded its 360° video content, from recording moot court competition practices, hearings, and oil and gas operations, which all highlight the varied and extensive possibilities that this technology brings to attorneys and legal departments. OU Law's most recent project was using its Garmin Virb 360° camera tethered to a DJI Phantom 4 Pro drone to capture historic and current oil and gas operations in and around Midland, Texas. Using this footage, students have been able to explore oil and gas wells, tank batteries, and water reclamation sites without having to leave the law school.¹⁰

While these first tests have been a major success, there are plenty of challenges that practitioners face when using 360° imaging. First, resolution when viewing 360° video is limited. The current consumer-grade 360° cameras range in resolutions from 1080 high-definition to 5.7K. At first glance, these

Nikon KeyMission 360 (<http://www.nikonusa.com/en/nikon-products/product/action-camera/keymission-360.html>), Ricoh Theta S (<https://theta360.com/en/about/theta/s.html>), and Kodak PixPro SP360 4k (<https://kodakpixpro.com/Americas/cameras/vrcamera/sp3604k/>).

⁸ "Clouds over Sidra", With.in (2016) (<https://with.in/watch/clouds-over-sidra/>).

⁹ "The Hidden", Oculus: VR for Good (2018) (<https://www.oculus.com/vr-for-good/programs/hidden/>).

¹⁰ For a sample of the video shot, and then narrated by OU Law's involved with the OU Law Oil & Gas, Natural Resources, and Energy Center, see *Santa Rita No. 1 – A 360 Experience, Narrated*, Youtube.com, 2018 (<https://www.youtube.com/watch?v=THU54CDsgGk>).

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specifications would seem to produce a truly high-quality image, however, because the pixels are spread over an entire half-sphere (most consumer 360° cameras include two spherical camera lenses), the resolution turns out to be less than what someone would expect from a “high-definition” experience. These cameras are also limited in how far a subject can be captured without distortion. These two issues alone make the level of precision and detail that most would expect from a high-definition experience lacking. In addition, the current mainstream consumer-grade headsets do not display in a true “high-definition” format. Because of a host of issues with the current technology, pictures and videos are still somewhat pixelated and not as sharp as modern video screens.

What Access to Justice Lab at Harvard Law School is Doing with Immersive Video

The Access to Justice Lab (A2J Lab) is testing the effectiveness of immersive video virtual reality trainings with pro-se defendants. In 2018 the A2J Lab put out a call for nonprofit legal service providers interested in innovative virtual reality trainings. One of the groups that reached out was the Gulf Coast Legal Services (GCLS) of Florida. Experience had shown training videos needed to be short, in a legal area where a little bit of knowledge can go a long way, and where the defendant played an active role in the Courtroom. A2J Lab and GCLS agreed pro-se debt collection cases were a prime candidate for a virtual reality training video.

A2J Lab and GCLS recorded several mock debt collection hearings using a Garmin Virb 360 camera. The video was edited to create a full 360 version designed for a VR headset and a “flat” version designed to be watched on a television. The study which launched in 2019, is a randomized controlled trial, randomizing pro-se debt collection defendants at GCLS. The study tests whether the defendants who watch the VR version of the video will get better outcomes than the defendants who watch the flat version without any VR headset. The results will hopefully cut through the hype of virtual reality and give legal service providers actionable information to use when deciding how to create new training programs.

Maryland’s Immersive Video Attorney Training

The Maryland Volunteer Lawyers Service (MVLS) and Maryland State Bar Association (MSBA) worked together to create a number of mock courtroom videos for Pro Bono attorneys and attorneys new to the legal market. The videos were filmed with a Samsung Gear 360 and used experienced attorney volunteers from MVLS and the MSBA. The videos focused on areas of law that required courtroom interaction that may be difficult to explain in an outline. For instance, how to introduce a photograph into evidence or enter a divorce agreement on the record.

The videos can be found for free on YouTube at <http://bit.ly/VRLawyerTrainings>. While the videos can be watched on a computer by using the mouse to see in all directions, the videos were designed to be viewed with a VR headset.

3D Models

To receive the full value out of a virtual reality system, 3D content is a must. This is the bedrock of virtual reality – transporting a user from their current world to any other world that can be imagined through the use of 3D models. 3D models are digital models of objects or places that are displayed in virtual space



through the use of a computer, software, and a headset.¹¹ The scope and scale of the types of models available are endless, and people all across the world are creating 3D models of anything and everything.¹² For instance, a 3D model can consist of the entire earth, with scalability options from viewing the entire earth down to the street level of a city.¹³ Additionally, 3D models can go as small as the imagination can take it, even to the molecular level, providing pharmaceutical patent claims a new arena of displaying the difference between the molecular makeup of a new and old drug. The easiest 3D models to create are static models, which can be done with cameras, scanners, or LiDAR systems, and models can also be animated or interactive depending on the nature of the file type that makes up the model and the level of coding ability used to create the model.

What OU Law is Doing with 3D Modelling

Currently, OU Law has been experimenting with 3D models created from various sources. Being part of a larger research university, OU Law gets to take advantage of the models that the colleges of engineering, architecture, anthropology, chemistry, and biology are creating in exploring what virtual models can do for lawyers. One model in particular, a highly detailed model of a skull made from a 3D scanner, highlights how personal injury attorneys can view injuries in a new, dynamic light. In addition to these models, OU Law is also creating its own models. As with the 360° footage that was captured using the drone, multiple photographs (120 to be exact) from the drone were taken of the Santa Rita #1 Oil Well in Texon, Texas.¹⁴ These photos were then “stitched” together in software¹⁵ to create a 3D “photographic” model of that oil well in a process called photogrammetry. This first attempt created a good model that highlighted details of the well that future students could explore on their own, without having to travel away from the law school.

OU Law has since began experimenting with recreating evidentiary scenes in 3D. The first attempt was a demonstrative recreation of a scene in the National Institute of Trial Advocacy’s *Dixon v. Providential Life Insurance Co.* case file for Brent Dishman’s Trial Techniques class in Spring 2019. OU Law and the OU Libraries’s Emerging Technology Librarians went to work creating a gruesome scene in which Judge Dixon had shot himself with a shotgun in OU’s OVAL 2.0 software. Key evidence was recreated in the scene, and students were able to virtually walk through the demonstrative scene. Functionality included the ability to indicate various evidence, perform measurements on the included shotgun, screwdriver, etc., as well as view a transposed skull with the path of the shotgun blast through Judge Dixon.

Currently, OU Law is working on a photo-realistic scene of the *Dixon v. Providential Life Insurance Co.* scene. In August 2019, OU Law and the Emerging Technologies Librarians staged a live scene, complete with actors and make-up artists, and recorded the scene through scaled photography. Using

¹¹ OU Law is using two Oculus Rift (www.oculus.com) Headsets paired with either an Alienware 13 laptop (<http://www.dell.com/en-us/shop/productdetails/alienware-13-laptop>) or a Falcon-NW Tiki Desktop (<https://www.falcon-nw.com/desktops/tiki/design>) running various VR applications, including the University of Oklahoma’s own OVAL system (<https://github.com/OU Libraries/edge/wiki/OVAL>).

¹² There are online communities and marketplaces where creators are posting their 3D models. See SketchFab (<https://sketchfab.com/>); see also Turbo Squid (<https://www.turbosquid.com/>).

¹³ Available in Google Earth VR (<https://vr.google.com/earth/>)

¹⁴ The Santa Rita #1 is the historic “discovery well” for the Permian Basin in Texas. See more about the Santa Rita #1 at the Texas State Historical Association, <https://tshaonline.org/handbook/online/articles/dos01>. To see a video of the drone footage that was used, see *Santa Rita #1 – Raw Drone Footage – Video 1*, <https://www.youtube.com/watch?v=NJGMFFpR-rE>.

¹⁵ Autodesk’s ReCap (<https://www.autodesk.com/products/recap/overview>).



photogrammetry, these images are being stiched together and coded to create a photo-realistic scene that OU Law students could explore in 3D.

3D modelling is not limited to curricular integrations. Because of the variety of models that could be created, attorneys can “walk through” crime and accident scenes, construction sites, or even historic areas. This has already happened to some extent, as seen with German prosecutors using the technology to recreate a 3D model of the Auschwitz concentration camp in Nuremberg trials¹⁶ and more recently, even in Norman, Oklahoma.¹⁷ As the technology progresses, more and more courts, attorneys, and legal departments will be exploring this technology to enhance the litigation experience.

There are challenges to incorporating 3D models into litigation. As with digital photos, or even Microsoft Powerpoint presentations, there will be hesitancy as to the accuracy of 3D models to depict the actual scene or object it purports to be. Additionally, attorneys and practitioners that receive a 3D model file during discovery may have a host of questions, beginning first on how to even view the file if they do not have hardware or software needed. Thankfully, the consumer market is already moving quickly to adopt standards. The Microsoft Windows 10 2017 Fall Creators included Microsoft’s Mixed Reality Viewer, which can view most standard 3D model files with no extra software or hardware needed. As this technology progresses, more and more attorneys will have the tools and know-how to incorporate into their practices.

What Does This All Mean for Lawyers

The legal profession has become particularly good at teaching law students and attorneys the black letter law and how theoretically the law works. However, a common complaint among new lawyers is they were ill prepared for the practical elements of the law. For example, the physical steps for entering something into evidence or how to properly interact with opposing counsel. These skills are difficult to teach in the current paper chase/Socratic method of law school. Law students may pick up a few of these skills during a clinic or court watch and new attorneys may shadow a senior attorney. However, this is a slow process involving a bit of luck in what the student happens to see that day in Court. Mock trials will sometimes fill these gaps but often revolve around how a trial should work in a perfect setting and not the reality of today's fast paced courtrooms.

The answer to how to train law students, new attorneys, and pro-se defendants on the actual procedure in Court is with VR technologies. The relatively low cost of entering the VR space means law schools and law firms will create libraries of what to expect for every time of courtroom interaction. The videos will be useful to experienced attorneys as well. Each locality has its own unspoken rules on how to act in Court. These VR videos will allow for an attorney to better understand the nuances of the new locality they are practicing in with relative ease. It is an exciting time to be practicing law. The changes coming down the pipeline have their flaws and bugs to be worked out but promise to allow lawyers to spend more of their time practicing law and less time with the administrative headache that comes with practicing law.

¹⁶ Mark Cieslak, *Virtual reality to aid Auschwitz war trials of concentration camp guards*, BBC News (Nov. 20, 2016). Available at <http://www.bbc.com/news/technology-38026007>.

¹⁷ Jesse Crittenden, *McMullen Trial Closing Statements Set For Today*, Norman Transcript, Oct. 2, 2019 (https://www.normantranscript.com/news/local_news/mcmullen-trial-closing-statements-set-for-today/article_82a910c1-281b-5248-ba59-8cf8143ba2ab.html).



VIRTUAL REALITY IMPLEMENTATION GUIDE

By Matthew Stubenberg

Introduction

Congratulations on considering the addition of virtual reality (VR) to your training materials. While still fairly new, VR is quickly being adopted as a valuable tool in training. Because VR can be a complex topic, this implementation guide attempts to boil down VR to what is most useful for training attorneys. It is important to note that VR technology is a dynamic and rapidly changing field, therefore, like all guides about technology, this guide will require regular updating.

Generally, VR is the creation and viewing of an artificial environment. This guide focuses on two main components of VR for creating your training materials: (1) how to create the artificial environment; and (2) how to view the artificial environment you just created.

There are two main ways to create an artificial environment. The first way is through the use of computer generated images (CGI), similar to how video games and Pixar movies are created. While this process can lead to some amazing results, it is expensive to build and requires complicated coding to be able to build the ability to interact with this environment. The second way is to record an environment with a special 360 degree camera. A 360 degree camera, discussed in detail below, has multiple lenses that allow the user to record video in every direction. Because the creation of CGI VR experiences is currently too expensive to create for most organizations, this guide focuses on how to make VR trainings using a 360 degree camera.

Once recorded, to view the VR video, you will need a VR headset. Using the VR headset, the user experiences the video as if they are standing in the location where the camera had been placed to record the video. There are many VR headsets on the market that range in price and immersiveness. The higher end headsets require connection to a high performance computer, but can allow a user to walk around in the VR experience and interact with it. Lower end headsets do not allow for the same level of interaction, but they provide for greater ease of access, such as the cardboard headsets created by Google that can be used with your smart phone. This guide will discuss the most likely choices for application in the legal field.

Most people have never experienced VR, therefore, an “easing-in” process is needed. This can be accomplished by creating VR videos or “experiences” that are relatively short with a maximum length of any individual experience of about 5 minutes. Creating multiple short videos will also allow for the user to take breaks in between. Eventually, when the technology is mainstream and people experience VR in everyday life, longer experiences may also be useful. For now, the key rule is to keep the videos short!

With this in mind, appropriate areas of law are those that can be broken down into 5 minute or less segments. Areas that have worked for other groups in the past are: putting divorce settlements on the record; accepting a guilty plea; and participating in an expungement hearing. It is also possible to take longer areas of law and break them down into shorter segments. For instance, a full trial would be too long for most people to watch comfortably in VR. However, the trial itself can be broken up into smaller segments such as one video on opening arguments, one on entering a photograph into evidence, and one on a motions hearing.



Selecting Your Equipment and Software

Video Cameras

VR technology is moving very fast and any recommendations for hardware may very well be outdated in six months. In order to record a VR environment you will need a 360 degree video camera with multiple lenses. The multiple lenses allows for the camera to see and record in every direction. This is crucial for the ability of a VR user to be able to see everything around them. To meet this need companies have developed a number of different cameras.

The most important factor in selecting a 360 degree video camera is video quality. HD video quality is generally acceptable for most uses, but is insufficient for purposes of a VR video. The video in a VR needs to be stretched to fit the environment all around the user, requiring a camera with a minimum of 4K resolution. For most organizations, an entry level camera like the Samsung Gear 360, pictured below, will be good enough. It contains two fish eye lenses, one on each side that capture video at the same time. This camera will cost approximately \$100 plus an additional \$25-\$75 for a memory card to go with it. The Samsung Gear 360 specifically requires you to have a higher end Samsung phone to properly use it. If no one on your team has a high end Samsung phone you may want to consider a similar type of camera, like the Ricoh Theta V, that does not require a higher end Samsung phone. Both the Samsung Gear 360 and the Ricoh Theta are designed to be consumer friendly and easy to operate right out of the box.



There are also cameras on the market that have a higher resolution, like the Garmin VIRB 360, which has a resolution of 5.7k, however, the extra resolution comes at a cost. At the time of this writing, the Garmin VIRB 360 costs \$800.



Alternatively, professional grade cameras can produce significantly higher quality video, but they can also be much more difficult to work with. If you want professional grade video recording, consider hiring a video production company to film your videos to save the cost (\$10,000+) and challenges associated with professional grade video production.

Stitching

VR videos typically must be carefully prepared before posting online, at a minimum by stitching the raw video together. The raw video from the VR camera typically comes out of the camera looking like a side-by-side “fish-eye” projection. The video must be converted into a format that allows for the full 360 effect before it is usable as a VR experience. This process is called “stitching”. Some cameras will do this automatically or it can be done using the software included with the camera. If you have a proficient user, professional grade software like Adobe Premiere Pro, may provide faster stitching speeds and more options. Once stitched together, the video is ready for editing.

Editing

Editing VR video is identical to editing conventional video in terms of software functionality. Adobe Premiere Pro is the easiest to use and best supported video editor for VR videos, but many VR cameras come with basic video editing software that is an excellent start for users new to video editing or VR video editing.

Editing VR videos is substantially identical to editing conventional videos from a technical point of view, but the VR environment presents special videography challenges. For example, the audience’s attention can be focused anywhere in a VR experience - there is no guarantee that the user is actually paying attention to or even looking at the action. Conventional videography handles this issue by centering the action in the camera frame, but that is impossible with a camera that records everywhere at once. Therefore, editors must attract attention in other ways - we have used text appearing on screen, transitions where the viewer is re-centered on the action, and actors who conspicuously look at the action on screen.

Although this guide does not cover how to select video editing software, many include how-to guides and selecting editing software with extensive documentation, such as Adobe Premiere Pro, may alleviate issues and help in learning the software.

Filming Your Video

Audio

Audio is an important element in your VR video. You’ll want to make sure that you record audio with a special microphone that captures audio from multiple directions. This is important because if the person speaking in the video is to the user’s right, the audio should come from the right. Luckily, most VR cameras today will come with built in microphones capable of capturing audio in multiple directions.



Location

After deciding what camera to use, the question then becomes where to film. This depends on what you are filming and the types of partnerships you have. If you are filming mock court hearings, then filming in a courtroom where these hearings are typically held is the best option. If you cannot get permission to film in your local courthouse, the mock trial rooms at your local law school are also a great option.

Scripts

You will want to give plenty of time to find and recruit subject matter experts who can boil down the information that you are trying to relay into a concise script. It is also important that the script is suited for your target audience. For example, if you are filming for users that may not have been inside a courtroom before, such as pro-se litigants or law students, it is important not to make any assumptions about what your user should know and include even seemingly minor details. For instance does your Court call cases alphabetically or the cases with attorney representations first? Including these details can increase the effectiveness of the training.

Actors

Choosing who will be in your VR video is also important. If possible, invite key stakeholders to be the actors. For example, if you are filming a mock court hearing that is always in front of a particular judge, it may be helpful to request that judge plays the judge in your mock hearing. The same can go for the state's attorney, public defender, court reporter, and bailiff. Other actors should be the subject matter experts to give appropriate tone and speed necessary to the script as expected in court.

If you have the time you may want to consider adding as many elements of realism as you can to the videos. See if you can get volunteers to fill the court gallery to give a sense of a packed courtroom. If this is a criminal hearing maybe you want to have a defendant being brought in from lockup. You can add the final bit of realism by making sure everyone looks the part. Lawyers and clients are easy with people's existing wardrobe but consider buying a Judges gown, prisoner jumpsuit, and bailiffs uniform at a Halloween store.

Making Your VR Video Accessible

Hosting

For publicly available VR videos, the easiest way for people to find the videos is to host them on an online platform such as YouTube and Facebook. It is important to note that the default for viewing a VR video should be set to the highest possible quality to avoid having your 4K video defaulted to HD by YouTube's default settings. Platforms such as YouTube and Facebook generally allow users to find the video and watch it in 2D with the ability to move the view around with their mouse. To obtain the VR display with a VR headset the user will either have to click a button or the headset will automatically detect it is in VR.

If you do not want to make your VR videos public, the videos can also be loaded directly onto standalone VR devices. This can also be useful if you'll be showing them in areas with limited internet access.



Viewing

There are a number of different options for viewing the video you just created. First, the video can be viewed on a regular computer. For example, <https://www.bit.ly/VRLawyerTrainings> will link to YouTube where you can see the VR videos we have already created. You can use your mouse and drag the video around to see every angle of the video.

To get the real experience from VR, you need to view it using a VR headset. A VR headset consists of a screen that the user holds up to his or her face to watch the video. The VR headset has a gyroscope and accelerometer which can determine if the user is moving their head and in what direction. In response to the user moving his or her head, the VR headset will display the corresponding part of the video. If the user looks to the left the video will seamlessly move along, giving the illusion of actually looking around.

There are many options for providing your users with VR headsets. Some like the HTC Vive and Facebook's Oculus Rift can be very costly, need to be connected with a powerful computer, and are usually designed for more serious interaction like gaming. On the other end of the spectrum there are cardboard headsets like Google Cardboard that work by using your phone as the screen. You simply slide your phone into the Google Cardboard headset. These headsets (minus the phone) can cost as little as \$10. One recent option are standalone headsets that are mobile but do not require a phone. These options are great for small clinics where you need something reliable every week for lots of people. The most recent standalone headset is the Oculus Go which is priced at \$200 and contains 32GB or 64GB of memory meaning you can keep your videos on the headset. This means no internet is needed once they are loaded on.

Measuring Success

VR is new technology and it is uncertain how to best implement it into the legal field. Studying the success of a VR project is important, not only for your particular organization but for the legal community as a whole. Randomized controlled trials (RCT) are the gold standard of measuring the effectiveness of a project. For a typical pro bono attorney training program, implementing an RCT would mean half of the attorneys at the training are picked at random to view the VR videos. The other half would not view the VR videos. You would then determine if the VR videos had a noticeable effect by measuring outcomes like how confident the attorneys after the training and whether they receive better results for their clients. Empirical evidence like this will allow the legal community to better allocate resources toward proven methods of VR implementation. If your organization has limited experience in running an RCT, there are groups that can help like the Access to Justice Lab at Harvard Law School.

Conclusion

VR offers vast potential for use in the legal field. Groups should approach this new technology knowing it will change significantly over the next couple of years. As with all new technology, there will be skeptics who don't understand the possible benefits. Don't let them dissuade you from trying new projects in VR. As with any new project, make sure you have the ability to study its effectiveness. Conducting a randomized controlled trial (RCT) to test if the VR videos you created are having the intended effect is the best way to get continued funding and convince skeptics. If you have ideas for VR or lessons learned from your own VR video production, please share them with the community.

