



In *Virtual Reality Church*, theologians Darrell Bock and Jonathan Armstrong present a systematic reflection on how to faithfully apply virtual reality for ministry purposes. They examine the risks—like compromising the meaning of tangible worship—and opportunities—like safely reaching persecuted churches—of integrating revolutionary technologies into the Christian life.

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THE NATURE OF VIRTUALITY

“WHERE IS THE WISDOM WE HAVE LOST IN
KNOWLEDGE? WHERE IS THE KNOWLEDGE
WE HAVE LOST IN INFORMATION?”¹

◆ T. S. Elliot

“TECHNOLOGY IS A GIFT OF GOD. AFTER THE GIFT OF LIFE
IT IS PERHAPS THE GREATEST OF GOD’S GIFTS. IT IS THE
MOTHER OF CIVILIZATIONS, OF ARTS AND OF SCIENCES.”²

◆ Freeman Dyson

If we are to be skilled ministers of the gospel in the virtual age, then we need to have a thoroughgoing grasp of the nature of virtual reality. What is *virtuality*? The dictionary defines *virtuality* as the state of being virtual or being one way in power, force, or effect but another way in actuality. Attempting to ferret out the exact nature of virtual reality therefore would seem to be a nearly impossible task. But everything in God’s universe has a nature. Every new technology operates by a set of principles, and we will deploy this technology best when we understand these principles and reflect on their relation to the types of problems that we intend to solve by applying them.

We have heard a lot about the “limitless possibilities” of VR in recent years. Ernest Cline, author of the 2011 novel, *Ready Player One* (the film adaptation produced by Steven Spielberg appeared in 2018), explains that he wrote the book because he wanted to explore the technology’s “limitless application.”³ In the hype that has poured out from the VR industry over the past couple of years, there has been no shortage of claims that essentially everything is within the reach of VR. But every new technology has its limitations, and VR is no exception. When a new technology first lands in the awareness of the public, it may seem that the technology has no bounds. But sustained experience with the new technology and reflection on this experience will reveal its limits, and understanding these limits will allow us to begin setting the technology to its best use. When we as church leaders and Christian educators are first introduced to VR, we may falsely assume that the technology is capable of absolutely everything, including replicating a church service or a seminary-level theology class down to the minutest detail. But this is not the case. VR may be the most powerful communication medium yet invented by humankind, but it will nonetheless require great creativity, patience, wisdom, and expertise to develop effective forms of Christian ministry in VR.

In a way, the applications of new technology are indeed limitless, but this does not mean that the technologies themselves do not have limits. Let me explain. If any invention ever stirred the imagination of humanity to dream about limitless possibilities, it would be the book. The book superseded the scroll as the medium of choice for written materials not long after the close of the first century AD. Books beat out the competition for several reasons. First, books are more convenient

for retrieving information (transitioning from one passage to another in a scroll takes far more time). Second, books can be revised with relative ease (individual pages can be excised or inserted with minimum repair work necessary, whereas patching a scroll is laborious and never looks quite right). Third, books are less troublesome to store and transport (small and large books stack neatly on shelves, but scrolls become unwieldy when they are too small or too large). Today, hundreds of thousands of new book titles are published each year, and yet we come no closer to exhausting the value of books. If any invention ever offered “limitless possibilities,” surely it would be the book.

But seen from another angle, books are not limitless but bound, and it is precisely this boundedness that creates the value for which we use books. Even after many centuries, the basic “look and feel” of books has remained remarkably static, from the time of Julius Caesar to our own day. Even after centuries of improvements and technological advances, books continue to be burdensome to carry except a few at a time, are susceptible to water and fire damage, and still consume significant amounts of paper—a resource that we today understand to be more precious than ever. The invention of the book has opened up limitless possibilities, but these possibilities are directed and shaped by a very specific set of limitations.

This principle is true not only for the book. The nineteenth century witnessed one of history’s profound technological revolutions with the invention of the steam locomotive and the rise of the commercially successful railroad. To the nineteenth-century citizen, the railroad certainly seemed to open up endless possibilities, and in a way the railroad did change everything. Intellectual historian Jacques Barzun explains that the rise of

the railway marks “the completest change in human experience since the nomadic tribes became rooted in one spot to grow grain and raise cattle; it was in effect a reversal of that settling down. Locomotion by the force of steam, the railroad, uprooted mankind and made of it individual nomads again.”⁴ In the US, the history of the railroad is intertwined with the history of the settlement of the western territories, the assimilation of the “wild west” into the forty-eight contiguous states. On June 4, 1876, the Transcontinental Express arrived in San Francisco after having left New York City a mere eighty-three hours and thirty-nine minutes prior. Newspapers across the nation exploded with the tidings. The famed Oregon Trail, which had been the principle route to the west previous to the rise of the railroad, required a six-month journey on foot, people trudging alongside the oxen who pulled the covered wagons filled with supplies. It seemed that anything would be possible in the wake of the revolution that the railroad promised.

The railroad certainly reshaped America, as well as almost every other nation on earth, and yet trains today still carry some of the same basic limitations that they did when they first appeared two centuries ago. Because trains run steel wheels on steel rails, they roll forward and backward with astoundingly low levels of friction. This means that trains can transport cargo in a vastly more efficient manner than traditional wheeled vehicles, such as horse-drawn wagons or modern automobiles with rubber tires on asphalt roads. The incredibly low levels of friction between steel wheels and steel rails means that locomotives need to be extremely heavy in order to have pulling power. The extreme heaviness of locomotives and their cargos further means that trains require great distances to start and stop.

This cascading sequence of causes and effects translates to the fact that trains today still operate similarly to the trains of the past in several ways: trains travel on rails (and therefore cannot roam in any direction the engineer may desire), trains are long (the expense of maintaining a railway dictates that the payloads of trains are, on average, far greater than that of cars or trucks), and trains abide by tightly governed schedules (if you were ever the passenger who imagined that the train would wait for you, you will know what I'm talking about). In one sense, the railroads did change everything. But, seen from another angle, railroads continue to be limited by many of the same factors that have always defined railroads. Does VR carry limitations equivalent to the bounded pages of the book or the unmovable tracks of the railroad? We suspect the answer is yes, and in this chapter, we will present ten principles that articulate what we believe these limitations to be. We will deploy VR technology for the purposes of Christian ministry best if we have a clear sense of what VR can and cannot do.

Before we dive into the principles below, two quick caveats are in order. First, while we believe that VR technology does carry basic limitations, we admit that distilling precisely what these limitations are is a process that is far more simply done in hindsight than with foresight. When VR technology is understood better in the future, experts will no doubt be able to state VR's fundamental capacities in a fewer number of principles than we can now. Second, for each of the ten principles below, the reader can silently append the phrase, "for the foreseeable future." It should be stated explicitly that all of our conclusions are extrapolations from the constellation of technologies that we know currently as virtual reality.

1. VR Is, After All, Virtual

Users will remain aware that VR experiences are simulations of actual reality. Therefore, the value of VR technology will be that it allows users to engage in simulations of experiences that in actual reality could be unsafe, expensive, or impossible.

In its present incarnation, VR is a series of wearable apparatuses that simulate sense perception. The VR headsets of today deal with the senses of sight and sound, but there are consumer products available that simulate the sense of touch. These so-called “haptic devices” can take on a variety of forms, for example, gloves that one can wear in order to “touch” virtual building blocks or vests that one can wear in order to “feel” simulations of physical objects (such as rain) or abstract phenomena (such as music). Haptic devices are currently not as common as VR headsets, but the technology is showing promise, and experts anticipate that select haptic devices will become widely accessible in the years ahead. The technology to simulate the senses of smell and taste is in development in laboratories, but it is not clear at present whether consumer VR will deal with smell and taste within the decade. However, it is clear that VR systems in the future will provide simulations of sense perception of an increasing realism and across a broadening spectrum of senses. The experiences that VR systems will become capable of delivering will become progressively more immersive.

One of the controversial questions in the VR industry today is whether the technology will ever become so compelling that the simulations will be indistinguishable from actual reality. Will the sense of “presence” that VR delivers ever be so powerful that it renders users incapable of detecting whether they are in

a simulation? From our perspective, the answer to this question is clearly “no.” The plotline of many dystopian science fiction films and novels hinges on the idea that VR simulations become so good that they are indistinguishable from the real world. This lost ability to differentiate between virtual reality and actual reality is then exploited by the villains of the movie or book. Not all experts agree, and some enthusiasts seem to think that VR’s value cannot be realized unless the technology reaches this point, but we are quite convinced that it is extremely improbable that VR will ever be able to replicate reality so compellingly that users are incapable of distinguishing the simulations from actual reality. This is not to say that people will not use VR for escapism or to block out their experience of actual reality, which to them seems too painful or too banal to face. But the basic fact that users will remain psychologically capable of perceiving that their experiences in VR are simulations means that most VR users will be content to engage in VR for a specific set of uses. These use cases include simulations of experiences that in actual reality would be unsafe, expensive, or impossible.⁵

Why do we conclude that VR will never really fool people into thinking that the simulations are actual reality? As the founder of Moody Bible Institute’s VR Lab, I (Jonathan) have had the privilege of proctoring first VR experiences for hundreds of people. While I have witnessed many responses of amazement and even awe when people don the VR headset for the very first time, no one at any point has ever mistaken VR for reality—not even for a second. One of my favorite initial responses came from Jon Guerra, the artist who wrote the popular worship song, “I Will Follow.” After Jon put on the goggles, and I started to showcase our latest VR learning environments,

he exclaimed: "I want to vacation here!" But in all the hours of VR experiences that our lab has cumulatively clocked, no one once forgot that they were in a simulation. I can attest that small children, too, do not confuse virtual reality for actual reality. I personally own VR equipment and, as a prelude to family game night, I occasionally allow our children a quick experience in VR. One of our children's favorite VR experiences features a pet dragon (modeled in visual appearance and personality after a puppy) that one can give treats to, play fetch with, or stroke lovingly on the top of the head. After my third-born daughter took one of her first forays into VR, I asked her whether the pet dragon were real. I might as well have asked her whether "Todd the Frog" were real, whom I impersonate when I place her on my back and hop up the stairs to tuck her into bed for the night. Even my three-year-old daughter thought the question was silly and could not for a moment imagine that her VR experience had not been a simulation.

But what will happen as VR technology becomes more advanced? We conclude that people will still be able to distinguish the difference between VR and actual reality. Consider for a moment how tremendously the technology of photography has advanced over the course of the past two centuries. We have moved from black-and-white images, which were barely focused and required days to develop, to images of brilliant color and astounding resolution that can be communicated anywhere in the world in an instant. But despite these massive technical advances, how many times in your life have you looked at a photograph and mistaken it for actual reality? In 1886, when the Lumière Brothers premiered in Paris their fifty-second film, "Arrival of a Train at La Ciotat," it was reported that people

screamed and jumped out of their seats, terrified that the approaching train would crash into them. But it turns out that this story is an urban legend, and so virtually no one in the whole history of cinema has ever mistaken film for real life. From our experience with current VR technology, we see no clues pointing to the conclusion that VR will someday be indistinguishable from actual reality.

VR theoretically allows us to experience simulations of anything, but because we will remain aware of the fact that our VR experiences are simulations of reality, we will choose to access VR to facilitate basically only three kinds of experiences: those that in actual reality are potentially unsafe, expensive, or impossible. Many of our everyday experiences in real life would feel like agonizing wastes of time in VR (for example, emptying out the recycling bin). However, we might expect a lot of people to queue up if we were offering VR experiences that in real life were potentially unsafe (for example, driving a sports car down the winding streets of Monaco), expensive (for example, hosting an evening with friends on your own private superyacht), or impossible (for example, walking alongside a brontosaurus in a prehistoric habitat). VR experiences that contain value to users will present elements from at least one of these three categories, and sometimes elements from all three. Scuba diving with blue whales or learning to perform open-heart surgery could qualify for all three criteria.

How then might we apply VR technology for ministry purposes? Let's work through these three categories one at a time. Are there activities that the church and institutions of Christian education engage in on an ongoing basis that are potentially unsafe? Training for missionary aviators comes immediately to

mind for us.⁶ Learning to land an airplane on an airstrip in the jungle is a process that can be improved by VR simulations. What about first-aid training or intruder response training for church staff and volunteers? Medical schools are among the earliest educational institutions to adopt VR broadly, and VR simulations offer benefits over traditional techniques when teaching many medical procedures. Those training for missionary service in the medical field may be the first Christian workers for whom VR is a normal part of their educational experience.

VR experiences create value when simulating experiences that are perceived to be potentially unsafe in real life, but what is perceived as “potentially unsafe” will vary for different people and need not pose an objective threat of bodily harm. VR experiences can create value in simulating experiences that are perceived as psychologically unsafe or merely notably uncomfortable. Studies are emerging that demonstrate that VR can be used as an effective tool in overcoming anxiety in an array of situations. JoAnn Difede, professor of psychology at the medical school of Cornell University, became internationally famous for her work in applying VR to the treatment of patients suffering from PTSD following the terrorist attacks of September 11, 2001. There are many possible ways in which VR simulations could be applied to reinforce the effectiveness of Christian counseling.

Are there expensive activities that the church and institutions of Christian education have traditionally pursued? The list of use cases for VR technology here could be extremely long. Christian communities have historically invested significant resources in travel, either for the purposes of missionary service (whether this be a missionary team or an individual),

communication within a network (for example, conferences or synodal assemblies), or for educational and spiritual enrichment (for example, study tours and pilgrimages). As VR technology advances, it is probable that the need for travel will decrease significantly. International travel is incredibly expensive, and the costs are measured in environmental impact and personal health as well as dollars.

Leaders of denominations and mission agencies know what it is like literally to fly to the other side of the world in order to attend only a few days of meetings. Not infrequently, more hours are spent in the airplane than in the conference room, and the road warrior can live perpetually in the wrong time zone. These have been the trials faced by the leaders who have maintained solidarity among our international Christian networks for the past decades. This is not to say that the relationships that people form in VR are equivalent to the relationships formed when people assemble in person. Nonetheless, churches and Christian networks stand to gain a great deal by learning to identify what components of their community life can be effectively conducted in VR and by migrating these specific components to VR platforms.

Sometimes we board an airplane and fly across the ocean not to see other people but to see extraordinary places. The tradition of pilgrimage—whether to sail on the Sea of Galilee in Israel or to visit C. S. Lewis’s home in Oxford—has a long and deep history within Christianity. Who among serious Bible students would not be interested in a VR tour of the Temple Mount in Jerusalem? It fires the imagination to think of seeing the paintings on the walls of the Vatican Museum right from one’s living room. VR pilgrimages are unlikely to forge the same

depth of spiritual transformation traditionally associated with this kind of journey, and yet VR pilgrimages also come with real advantages, perhaps the first being that they will cost far less money and therefore will be available to a far broader audience. Even for those who are privileged to travel in person to the sites of the Holy Land, the ability to return to these sites in VR and relive their memories will prove attractive.

Tourists at famous historical sites almost never receive the pristine and solemn experiences promised in guidebooks. Rushed through the exhibit alongside hordes of other tourists, with feet aching for the next cappuccino break, sometimes facing dehydration and practically at the point of heatstroke, we discover that real-world pilgrimage is not only expensive but extremely tiring. Whether it is the number of miles we can walk on our feet in a day or the number of hours we can ride on a bus, our physical limitations frequently interfere with our ability to experience sacred sites. VR pilgrimages will not supersede actual pilgrimage, but the fact that VR pilgrimages can be accessed conveniently and repeatedly will have real value for Christian education and spiritual formation. We should also point out that there are no crowds and no security guards in VR museums, which means that visitors may come as close to the paintings or artifacts as they please.

Lastly, are there experiences that are impossible in actual reality but could be simulated in VR for the purposes of deepening spiritual life? We suspect that there are, and we suspect that this is where VR will ultimately produce its most significant contributions. First, as an abstract example of such an impossible experience, VR could provide a new liturgical language for the global church. The experience of worshiping with Christians

from other places in the world is often a powerful source of spiritual renewal in our own lives. Perhaps you have experienced the invigoration of dancing in praise with African Christians in a remote village. Perhaps you have knelt on the floor of a house church in Shanghai and prayed fervently in a circle with Chinese believers from the underground church. Perhaps you have awakened in Europe on a Sunday morning and followed the sound of church bells into a cathedral, discovering God amid the majestic organ music and serene order of service in a way that you did not expect. In these moments we discover echoes of God's cosmic plan to draw every tongue, tribe, and nation to His eternal throne in never-ceasing worship and adoration (see Rev. 7:9).

Many streams of Christian worship find their source in the quest to recreate this heavenly scene, as our liturgical practices seek to resonate with the worship of the saints in God's presence. Could VR provide the new alphabet and musical notation by which we sing praise to God, the new cathedral in which we worship as the global church? What could this impossible experience possibly look like when performed in reality? Maybe for the immediate future all that we should hope for is the opportunity to visit churches from around the world in VR. If given the opportunity to do so, I would gladly don my VR headset during the Christmas season and join an Anglican carol service or sign up to learn to paint icons in the Russian Orthodox style in the weeks leading up to Resurrection Sunday. This might be a first step in allowing Christians from around the world to share the riches of their traditions with one another.

Second, let us consider a concrete example of how VR might facilitate an impossible experience for the purposes of Christian

ministry. There is a long history of Christian artists and authors placing their viewers or readers into the stories of the Bible. Ludolph of Saxony (ca. 1295–1378), for example, whose *Vita Christi* inspired Thomas à Kempis's *Imitation of Christ*, developed the technique of imagining oneself as an active participant in the Gospel stories as a spiritual exercise. VR could be applied to facilitate such experiences in sermons. Imagine a sermon from the story of Noah about judgement and grace (Gen. 6–9). Now imagine hearing that sermon from inside Noah's ark, the closing of the colossal, wooden door and the sound of the rain beginning to pound on the exterior of the vessel punctuating the preacher's points.

Imagine a sermon about the faith of the four friends who brought the paralytic to Jesus at Peter's house (Mark 2:1–12). Now imagine listening to this sermon while you watch as the roof is opened, tile by tile, and the sick man is lowered down in front of your eyes before Jesus. Sermons on passages from Paul's Prison Epistles sometimes start with an explanation of why Paul had been imprisoned. Imagine your pastor delivering this explanation as an avatar of Paul, while you and the other members of the congregation listen from across iron bars. One would appreciate the gospel in a new way if one experienced the sacrifice that the apostle Paul made in order to share this good news. There is a great deal to be done in developing a new kind of Bible storytelling through the medium of VR.

If VR technology is never able to compete with the intimacy, vividness, and memorability of real life, then the value of VR experiences will remain confined to activities that in the real world would be potentially unsafe, expensive, or impossible. VR will be an amazing place to explore but a poor place to live.

People will want to visit a reconstruction of first-century Jerusalem in VR, but they will also want to be able to take off the goggles and share their excitement and learning with family and friends over a real plate of falafel.

2. In VR, the User Is Not a Spectator but a Participant

Unlike traditional theater and film, which position the user as a spectator of an external performance, VR places the user within the scene. The user of a VR experience therefore assumes himself or herself not to be a passive viewer but an active participant. This shift in perspective and role renders VR a remarkably powerful medium for shaping attitudes and creating empathy.

Theater and film critics sometimes speak of the “fourth wall.” This phrase refers to the convention that, although spectators can see into the world portrayed by the actors, the actors pretend that the spectators are not there. The traditional theater stage can be conceived as a box with three closed walls and one open wall, through which the audience peers. This has been the basic setup of theater stages even as far back in the Western tradition as the sixth century BC, when ancient Greek actors performed at the Theater of Dionysius on the slopes of the Acropolis in Athens. But in VR, the convention of the fourth wall feels unnatural and constrictive. When you strap on a VR headset, you expect not to be an observer of a performance from the other side of the room but to be an active participant in what is going on all around you. Audiences in traditional stage and film theaters are spectators who are not asked to do anything but not to interrupt the performance. Users of VR experiences will instinctively expect to be able to shape the outcome of the experience.

Chris Milk, a pioneer in VR cinematography, addressed how the absence of the “fourth wall” renders VR productions different from traditional theater and film. In a 2015 TED Talk titled “How Virtual Reality Can Create the Ultimate Empathy Machine,” Milk noted: “Film is an incredible medium, but it’s essentially the same now as it was then.”⁷ Milk explained that film has remained for the past century a window through which viewers looked into another world, but VR allows users to step through that window. The act of stepping through the window—passing through the “fourth wall” that has kept the audience divided from the story of which they are spectators—creates an emotional connection to the story that is not possible in traditional theater or film. Milk tested his theory in his critically acclaimed short film, “Clouds over Sidra.” This film of eight minutes and thirty-five seconds was shot at the Za’atari Refugee Camp in Jordan, which is occupied primarily by refugees from Syria. The film is narrated by a twelve-year-old girl, Sidra, who guides you on a tour of her life in the refugee camp. For a few minutes, the fact that Syrian refugees face dire circumstances and extreme deprivation is not a distant fact but your own reality. The stories we experience in VR become our own stories, because, in a way, we embody them and actually live them.

The fact that the user of a VR experience can turn his or her head in any direction at any time creates endless problems for producers of cinematic VR content. In film, the director can control with incredible precision the focus of the camera and the exact timeline of events. In this way the director can control where and when the audience looks. For example, in a detective film, the director might flash a clue on-screen, raising just the right level of suspense and suspicion. But in a rendition of

the story in VR, the director cannot control where the audience may be looking at any point in time, and therefore the director's intention that the audience discover the pistol on the piano may be thwarted because the audience is more interested in the curious-looking Chinese vase on the opposite end of the room. The difference between film and VR on this point may seem slight, but it has profound ramifications.

I (Darrell) once counted the number of seconds of each clip in an MTV-style music video. I discovered that no image stayed on the screen for more than four seconds. Processing information this way is very different from contemplating an argument in words. The genius of film is that it can present scenes one after another in perfectly timed sequences of events. This makes film a remarkable medium for fast-paced action sequences. This same set of qualities also makes film a generally poor medium for philosophical discourse, which requires the opportunity to stop and reflect. The genius of VR is interaction—that the experience is reshaped by participation.

VR is a new medium with exciting new possibilities, but learning to use any new medium effectively requires a process of trial and error. Jeremy Bailenson reminds us: "People using a new medium have a difficult time breaking out of the thinking involved with the previous ones. We see this in the history of Hollywood filmmaking. Many of the early storytellers in Hollywood came from the world of the stage. Consequently, early directors essentially filmed stage shows—one camera angle in front of a proscenium arch, with few to no cuts."⁸ The pivot from spectator to participant represents one of the greatest challenges posed to producers of VR content, including producers who seek to create VR for the purposes of Christian ministry.

Just as Hollywood filmmakers initially reproduced stage shows in the new medium of film, so our first inclination may be to reproduce the form of church services as we now know them in VR, but this will probably prove to be a misstep. Each element from our church services today will require careful translation into the medium of VR in order to express the spiritual purpose of each element properly.

3. VR Simulates Sense Experience but Cannot Directly Present Abstract Concepts

VR excels at articulating spatial relationships and physical movement. VR is an extraordinarily effective platform for visualizing data that can be sequenced by spatial relationships, such as models of complex structures or intricate maneuvers. VR simulates sense experience but cannot directly present abstract concepts or spiritual realities.

If you were attempting to teach me about something complicated but concrete—let's say how the components of a Boeing 747 airplane are assembled—a well-constructed VR experience could be a tremendous aid. It is relatively straightforward to imagine how VR could significantly improve the process of learning about this complicated but concrete process. You could set out in VR a series of jumbo jets in various stages of completion, and reviewing these models would provide me with a clear sense of each step involved in the process. Setting up this visual aid in VR rather than in real life would also come with the advantage of not requiring hundreds of millions of dollars of inventory and showroom space. For some learning experiences, VR offers incredible resources. But VR does not improve our

capacity to learn and communicate about everything.

While VR is a powerful tool to help us imagine spatial relationships and the manipulation of physical objects, the medium is uncannily concrete. If you were teaching a Bible lesson on the story of David and Goliath, for example, you could use VR to pinpoint on the map where the confrontation took place. You could use VR to allow your audience to see from all directions a digital replica of an ancient Israelite sling, and VR modeling could help participants understand how such an innocent-looking weapon could propel lethal force. You could create an interactive exhibit that would allow audience members to see exactly how tall Goliath would appear to them if they were standing next to him. VR would excel at communicating all of these concrete realities.

But VR could do very little to help you explain the source of David's faith and how the audience can find this faith for themselves. If you wished to note in your Bible lesson that David's motivation for slaying the giant was not for personal glory but to defend the name of the Lord, it would not be obvious how VR could improve on a simple verbal statement of this point. VR can reproduce digitally realities that we can see with our eyes and hear with our ears, but what about realities that we feel, intuit, and perceive spiritually?

This is not to say that standard tool kits will not be developed for VR that facilitate the communication of abstract concepts. Emoticons are an interesting case study in the way that elements that are not native to one form of communication can be transposed into another. Text messaging does not natively communicate information about the emotional state of the author, except when the author explicitly states such

information. If you receive a text from a family member that reads, “I’ll be there in an hour,” you may not have all of the information you need in order to interpret her message. Is the sender expressing excitement that she will see you soon or disappointment that her train is running late? The smiley face—one of humankind’s noblest inventions—has been devised in order to help us in precisely this predicament. The sender of a text can communicate her approximate emotional state by appending an emoticon (that is, a symbol of a specific feeling, represented by a face that is at once recognizable but not personal) to the words of her message. In spoken language, emotional information is communicated by vocal tone, but because text messages do not reproduce vocal tone, this information is missing unless it is translated into an emoji or expressly stated.

It may be that standard tool kits are devised in order to allow ministers and Christian educators to communicate about the abstract concepts of theology and the interior realities of Christian spiritual life. In fact, the Christian tradition already possesses a rich library of symbols and allegories in order to articulate the spiritual truths of the faith. As Christians, we receive the stories of the Old Testament as lessons of faith for us today (see Rom. 15:4; 1 Cor. 10:11). These stories all point to deep, spiritual realities through concrete, historical events. Jesus’ parables are a treasure trove of specific spiritual symbols that can be applied in teaching Christian doctrine. Even more than this, Jesus becomes for us the master teacher from whom we learn to teach theology through the mundane. The farmer sows the seed, which is the word of God (see Matt. 13:3); a man discovers in a field a pearl of immeasurable value, which is the kingdom of God (see Matt. 13:44); the wise virgins await the entrance of the

bridegroom, who is the Son of God (see Matt. 25:1); the sign of Jonah, who was swallowed by a great fish and remained in its belly for three days and three nights, points to the death and resurrection of the Messiah (see Matt. 12:39). Jesus is the vine, and we are the branches (see John 15:5).

This abundant library of symbols, embedded into the Christian tradition at its very foundation, has been an inexhaustible fount of inspiration for Christian artists of all ages. It is waiting to be explicated compellingly, beautifully, and faithfully in virtual reality. VR by itself cannot overcome the spiritual blindness about which Jesus warned when He said to the audience of His own parables: “You will indeed hear but never understand, and you will indeed see but never perceive” (Matt. 13:14b ESV). The telephone has turned out to be a useful tool for the purposes of Christian ministry; most pastors use them everyday. But despite frequent jokes to the contrary, there are no direct phone lines to heaven to allow us to hear the voice of God through our telephones. The same will prove true with virtual reality. VR will be a useful tool for Christian ministry, but bringing spiritual sight has always been and will remain the work of the Spirit. As we labor as Christian teachers to bring into visible form the spiritual realities of the faith, we trust that God will illumine our minds and increase our love for Himself.

4. VR Can Facilitate Cross-Cultural Communication

VR opens many doors of opportunity to improve cross-cultural communication. VR is a composite media type that allows creators to set side-by-side, text-based communication and other forms of media (such as, audio files, images, and video content).

Let's imagine that we set up an experiment to study how cross-cultural communication works. For this experiment, we form two teams. Team A is composed of five people whose primary language is French, but each of whom have varying degrees of ability to communicate in English. Team B is composed of five people whose primary language is English, but each of whom studied French in school for a couple of years. We then task these teams to play the following game. Team A will hide a red flag somewhere in the Willis Tower in Chicago. After hiding the flag, Team A will have the next six hours to prepare a five-minute briefing session for Team B. Team B will then be immediately dispatched in search of the red flag, and we will measure the time Team B requires to retrieve the red flag as an indication of the effectiveness of the cross-cultural communication of these teams. If we ran this experiment over and over again, and we allowed some teams to use VR to facilitate their cross-cultural communication and required other teams to rely solely on verbal forms of communication, we would discover that VR can dramatically increase the effectiveness of certain forms of cross-cultural communication.

What is going on here? Pictures aid cross-cultural communication. Language teachers have known this for a long time. This is why, when your teacher wanted you to learn that the French word for "apple" is "pomme," she brought to class a picture of an apple. VR can be conceived as an interactive picture, and as such it will open many avenues for cross-cultural communication. You may have noticed that the instruction manuals of today are far richer in visual content than the instruction manuals of the past. If you assembled toy models decades ago, you will probably remember that the instruction manuals consisted

of verbally precise step-by-step instructions. It required a lot of mental energy to figure out exactly what one was supposed to do.

Compare this experience to what it is like to assemble a piece of IKEA furniture today. The instruction manuals that accompany IKEA products generally have very few words whatsoever and are instead composed of a series of sketches and diagrams. By publishing their instruction manuals as pictorial booklets, IKEA can ship the same instruction manual to any region of the world, regardless of the language of the purchaser. In the same way, VR will be capable of facilitating communication between people who do not share a common language or who have limited ability in a common language.

Computer translation is still far from perfect, but it is making strides in the right direction. Skype introduced an automated translation service in 2015, which theoretically allowed speakers of different languages to hear one another in their own language in real time. As of 2020, Skype offers automated voice-to-voice translation in ten languages and text-to-text translation in sixty languages. Communicating through automated translation about anything more complicated than the weather and time of day can quickly become convoluted, but it is not difficult to imagine that this technology will improve in the years ahead. It may be, therefore, that VR technology and automated translation technology can be coupled in the future in order to facilitate quality communication between individuals and teams who do not speak the same language. Presumably human translators will always be needed to run interference for automated translation services, but computer tools will almost certainly speed the process of translation and extend the possibility of translation to new communities.

How might such technology be applied for the purposes of Christian ministry in the future? Imagine that a team of American medical professionals is preparing to travel to Bolivia in order set up a free clinic for one week in partnership with a local hospital. Everyone from the American team is able to meet everyone else from the Bolivian team during a preparatory meeting in VR, and while automated translations are not perfect, all team members are able to speak freely to one another during periods of socialization. When the American team arrives in Bolivia, the logistics have already been mapped out and communicated clearly, allowing the teams to work together to set up the clinic as efficiently as possible, freeing up valuable time for personal exchange. At key moments throughout the week, members from one team are willing to ask for help from members of the other team because they have already had the experience of speaking through automated translation, sometimes continuing their relationship through automated translation and sometime resorting to old-school Spanglish.

5. VR Renders Users Unaware of Their Real-Life Surroundings

VR is an immersive media experience, which means that the attention of users is so focused on the sights and sounds of the VR content that they frequently become unaware of the people and activities around them. In order to ensure the physical safety of the user, VR experiences will need to be proctored in controlled environments.

VR's power is presence. But to be present in VR is to be functionally absent in one's physical location.⁹ At least concerning the current generation of VR headsets, when one is present

in VR, one cannot see one's actual physical surroundings. Augmented Reality (AR) aspires to merge our experience of the physical with the digital, and it is probable that commercially successful AR products will become available in the next several years. But, at least concerning VR experiences as we know them today, you are going to want to check yourself in before stepping into virtual reality. Museum visitors know the routine of checking in their coats and handbags at the cloakroom. For VR experiences, people will basically need to check in their bodies at the door when they enter.

I (Jonathan) access VR experiences from only one of two physical locations: the VR Lab at Moody Bible Institute and my living room at home. I can control the environment in both places in order to have a safe and positive VR experience. When I access VR from my living room, I first check in with any family members who might be around to see whether anyone needs me for the next while. This check-in procedure is the equivalent of what I do when I am about to leave the house for a quick run to the grocery store. Glancing at a text on your mobile device requires only a few seconds and is acceptable in most social contexts. Donning VR goggles, on the other hand, is an entirely different proposition. When you place the headset over your face, your expressions become masked, and your interactions with the invisible personalities and artifacts all around you can feel absurd or even disturbing to those nearby. In its current state, VR is best experienced in carefully controlled spaces where you are free to disregard your physical environment for a few moments. It is not a media experience that people will want to step in and out of quickly.

In the world we know today, there are certain activities which

people are willing to check themselves in for—in order to see a film at a movie theater, for example. We check ourselves in at the airport in order to fly across the ocean, or at a restaurant for an elegant dinner. For these activities, we are willing to commit our physical presence for a set period of time. It is worth noting that people also check themselves into church—sometimes literally, as is the case with many nursery programs. Churchgoers are familiar with the embarrassment of having to get up in the middle of a service and leave for one unexpected reason or another. The commitment of time and effort that we invest in preparing to attend church services is not entirely unlike the steps prerequisite to attending appointments in VR. Churchgoers know the Sunday morning routine of dressing in church clothes, eating breakfast more or less punctually, and then driving across town to attend church services. Appointments in VR require a different setup routine, but nonetheless some preparation is in order to ensure that the experience is as successful as possible.

6. Users in VR Are Disidentified

It is almost equally simple for users in VR to represent themselves according to their physical appearance as it is according to an alternate set of preferences. People can choose to enter a VR social platform as an avatar that reflects the way they look in real life or as a purple lobster. Because we present ourselves and encounter others in VR as disidentified personae, establishing trust in relationships will be a perpetual problem.

Users in VR are disidentified. By “disidentified” we do not mean unidentified (that is, that users simply do not receive information concerning the identity of other users). When

someone or something is “unidentified,” we are conscious of the fact that we do not know the identity of the person or object. And by stating that users in VR are “disidentified,” we also do not mean “misidentified” (that is, that one user could be mistaken for another user). When on a nature walk, I might misidentify an ash tree as a beech tree, or I might misidentify a basalt rock as a piece of granite. Here my mistake would be to confuse one category for another. But imagine living in a world where it was possible to mistake your pastor for a pink elephant.

During the Cold War, both Eastern Bloc and Western Bloc countries staffed “disinformation” bureaus, which were assigned the ignominious charge of generating large quantities of false information with the intent of confusing and misleading public opinion in enemy territory. It is in this sense that users in VR are “disidentified.” In VR, everyone has access to disguises more sophisticated than even the KGB could devise at the peak of the Cold War. In 1993, Peter Steiner published in *The New Yorker* a cartoon that showed a picture of a dog at an office chair with one paw on the keyboard of a computer. Looking down from his desk at another dog sitting on the floor, the first dog exclaims: “On the internet, nobody knows you’re a dog.” Today we worry about our email accounts getting hacked; tomorrow we’ll worry about people stealing our avatars.

One of the early debates about VR churches surfaced in 2009 in the context of the Anglican Cathedral of Second Life. The question concerned whether one could lead church services while represented by a dragon avatar.¹⁰ The church had opened its portals to allow volunteers to lead the liturgy, but could a volunteer dressed as a dragon perform this service? Is coming to a church in VR as a dragon avatar simply a personal

decision—like what kind of necktie to wear—or are church members and visitors bound to abide by some kind of dress code? Worse still, does coming to church as a dragon hint at subversive intent?

Let's face it—Christians have argued a lot through the centuries about what constitutes proper attire for church attendance. Tertullian, the notoriously cantankerous bishop of Carthage in the early church, argued that Christian women should not wear any unnecessary adornment, such as makeup, jewelry, or fancy clothes.¹¹ Countless others have felt it their duty to add their opinion to the discussion ever since. Should ministers wear vestments with clerical collars that identify them as members of the clergy or business suits, or jeans with holes in the knees? Even the most welcoming and progressive churches have unspoken dress codes about what would be too relaxed or too ostentatious for church services. Conducting church services in VR will not sidestep the question of proper dress in church.

Some may mistakenly conclude that, because an avatar is “not really real,” its appearance should be unimportant, but this is clearly not the case. Painted and photographed portraits are also not real in the same way that an avatar is not real, and yet there is a long tradition of people spending fortunes to ensure that portraits are exactly according to their tastes. Fortnite Battle Royale set a new record in video game history when it earned \$1.8 billion in 2019.¹² What is particularly remarkable about this is that Fortnite Battle Royale is a free-to-play video game. How then did it generate such astronomical earnings? By selling cosmetics and accessories for players' avatars. These optional purchases do not improve the players' performance in the game and are strictly fashion items. As in the real world so in VR,

fashion is big business because people care a great deal about the way they present themselves to other people.

The clothes we wear help reinforce the role we intend to play, whether we are dressing to join a parent-teacher conference, a board meeting, a family vacation, or going to church. But avatars possess capacities for communication that extend beyond those associated with traditional fashion. The Reverend Pam Smith speaks of the problem of “sock puppeting” in the context of providing pastoral care in online environments.¹³ “Sock puppeting” is when one person controls several online profiles and impersonates multiple people in order to manipulate a conversation or social situation. For example, one person might pose as an offended student as well as the student’s irate parent in order to gain increased leverage. The question of appropriate dress in the context of worship has always required discernment and Christian charity. But because users have such complete control over the way they “dress” or appear to be in VR, even to the point that distinguishing between one person’s identity and another’s can become genuinely problematic, special consideration is required.

If churches aspire to be places of spiritual transformation, then they must also be places where people can trust each other. And here VR presents serious but not insurmountable problems. In traditional churches, there is a menu of rituals to help people build trust and establish rapport. When you enter through the doors of traditional church, you are welcomed with a smile and hearty handshake by a member of the greeter team. The smile is perhaps the first and most universal of all human behaviors for building trust, and smiles are infinitely easier to fake in VR than in real life. The Facebook profile picture proves this point.

Eating and drinking as a community is one of the oldest and best rituals for establishing trust, and traditional churches can create the opportunity to enjoy community meals on occasion. But none of these conventional methods of establishing trust are available to VR churches.

These serious concerns lead us to a couple of preliminary conclusions. First, it is not possible to replace in VR the trust that can be established through building relationships in person. This does not mean that every member of the congregation needs to meet with every other member of the congregation every week in order to have a healthy church, but it does mean that in-person communication will continue to play a unique role in establishing trust between members of Christian churches and ministry partners. Perhaps leadership teams meet face-to-face over coffee once per week, or prayer services that are usually conducted once per week in VR assemble in the church building once per month or once per quarter. Once relationships have been formed and some level of trust has been established, telecommunication in general, and VR specifically, can be used to sustain these relationships with some success. Even churches that intend to maximize the use of VR for ministry purposes should still retain mechanisms to facilitate in-person communication and interaction.

Our second preliminary conclusion is that VR churches should pay special attention to creating opportunities for church leaders and members to build trust with one another. There are innumerable ways to do this, even when speaking about communities who meet in VR and who do not come with any prior relationships. Sharing testimonies is an especially effective way for members of a community to give one another a clear picture

of where they stand in their spiritual journeys. The consistent practice of prayer over a sustained period of time frequently leads groups to discover a surprising depth to their relationships. As technology advances and the audio quality of VR telecommunication improves, we suspect that the ancient practice of singing together will become a mainstay of VR congregational life. Educational experiences can provide opportunities for exchange and dialogue that can provide a foundation for strong relationships of mutual trust.

And so we come to the question: “What about going to church in your pajamas?” Paul could not have delivered for us a more perfect principle by which to respond to this quandary than when he said: “All things are lawful, but not all things are helpful” (1 Cor. 10:23a ESV). Paul then goes on to say that he does not seek his own advantage but the edification of the community (1 Cor. 10:33). The principle is that, while individual Christians are free in many ethical decisions, Christians are also called to do what is best for the good of the community.

With this principle in mind, the answer to the question above will depend on what is meant by “going to church in your pajamas.” If we are speaking about attending church services in VR while still dressed in sleepwear in real life, then the question is really a nonissue. Not only will no one else in the VR church see your sleepwear, but you also will probably pay little attention to whatever you may be wearing in your house. If we mean selecting pajamas for your avatar to wear while attending church services in VR, then we would recommend asking a representative of the church about the dress code first. All cultures exhibit different sensitivities, and one of the sensitivities of internet and VR culture is the perpetual problem of establishing trust. Unless

you are sure that the VR church welcomes such attire, coming to church with your avatar decked out in sleepwear could easily send the message that you find the sermons soporific.

7. VR Cannot Simulate Anonymity

As is the case with other modes of telecommunication, VR creates data trails or the electronic records of the transactions of the users. However, VR is unique among other modes of telecommunication concerning the volume of data that it generates. VR use generates such a vast quantity of data that it is impossible to use VR anonymously.

Literally and figuratively, the jury is still out on many questions concerning internet privacy. Ever since Edward Snowden's revelations to journalists of the National Security Administration's mass surveillance program of the American people in 2013, many have come to the conclusion that "internet privacy" is an oxymoron. The Cambridge Analytica scandal in 2017, in which the personal data of millions of Facebook users was leaked, as well as Mark Zuckerberg's congressional hearings in 2018 concerning Facebook's sale of ads to Russian propagandists during the 2016 election have done little to restore the confidence of the public.¹⁴

The data collection techniques used by the tech giants of the past several years have by and large been voluntary. Users consciously choose to upload photos to their Facebook profiles and to enter data into their Google spreadsheets. But VR processes unprecedented amounts of data on users, and necessarily so. It turns out that we all move our bodies in ways that are as unique as the human fingerprint. VR headsets track head and

hand motion, and it is probable that soon most headsets will also track eye motion. The way I look about with my head and reach with my hands, the way I bob forward and backward on my feet, and the rhythm with which my eyes circle the VR environments creates a pattern of data that can be traced to me and uniquely to me. This data can be anonymized such that human editors are not aware of whose data they may be reviewing, but the data itself cannot but reveal who the user is. Internet security and data privacy is one of the pressing technological and legal questions of our time, and our concern here is neither to give false assurances nor to sound unnecessary alarm. However, at the very least, we can say that churches and Christian ministries that conduct activities in VR should do due diligence to ensure that their activities will not inadvertently affect Christians abroad who do not have the protections of religious liberty in their own countries.

To those of us in the West who have lived with the benefits of religious freedom, coping with the ambiguities and complexities inherent in online communication and VR can seem burdensome. But for believers in countries where religious freedom is limited, the new rules of the internet open up opportunity as well. In one such country where Christians live under threat of persecution, one mission agency devised a Bible software program that appeared as a functioning calculator app. When a certain equation was entered into the app, the “calculator” turned into a program for Bible study. In 2015, the Urbana Student Missions Conference held its first “hackathon,” where students with coding skills teamed up for an intense period of attempting to broker technological solutions to the hardest problems in missions. One such challenge was to develop an app that would

guide the user through the process of starting a new business in North Africa. Another challenge was to create a secure way for Christian missionaries to communicate in countries where religious liberty is limited. Tom Lin founded the event in order to respond to the question: “How can we stand alongside the persecuted church?”¹⁵

From a Christian point of view, it should come as no surprise that our words and every action are being recorded. In Matthew 12:36, Jesus tells us we will stand on trial for our every word: “On the day of judgment people will give account for every careless word they speak” (ESV). In this way, the Christian standard is already that God hears everything and that we are accountable for every word we say. The apostles set a precedent for Christians when they stated, “We must obey God rather than men” (Acts 5:29 ESV). Christians ought to speak and act in measured ways first in order to be accountable to God. The concern about whether our data is being recorded by tech giants and will be leaked at a later time is in this sense a secondary concern.

8. VR Places the User in Control

In VR, the user is at the center of the virtual universe. When compared to traditional media types, VR cedes almost total control to the individual user. VR therefore can support addictive behaviors and reinforce prejudices.

The internet creates a million and one ways for people to practice the art of self-deception. The internet can be an echo chamber where those who shout the loudest hear only their own voices coming back at themselves. As Sherry Turkle, professor of sociology and psychology at MIT, points out: “The web promises

to make our world bigger. But as it works now, it also narrows our exposure to ideas. We can end up in a bubble in which we hear only the ideas we already know. Or already like.”¹⁶ As a media type based in internet technology, VR perpetuates this basic feature. Shane Hipps reminds us that, when technology fails us, the unintended consequence can be precisely the opposite of the effect for which we applied the specific technology in the first place.¹⁷ The purpose of the automobile is to allow us to travel quickly and efficiently to our destinations, but the traffic jams that plague our cities today represent exactly the opposite effect. The purpose of the internet is to give us access to the instantaneous exchange of information, but we all know that the internet can become an enormous waste of time and even create greater confusion, either because of the overwhelming quantity of information available online or because of the inability to verify sources.

Technology is not bad, but it does fail. When our technology fails, we sometimes suffer from precisely the opposite effect of that which we had hoped to achieve. The purpose of VR is to allow the user to experience an alternate reality in order to increase our understanding of actual reality. When VR fails us as a technology, the failure will be that VR will cause users to see actual reality with less clarity and perception. When VR fails us, it will reinforce our prejudices and preconceptions rather than allowing us to discover new knowledge.

The advent of the automobile opened up a new era of “church shopping.” Because people could drive to whatever congregation they wished to attend, rather than remaining faithful to their neighborhood churches, churches began catering to personal preferences in a new way. VR churches will continue

to grapple with this same set of problems. When you go to VR looking for a church service, do you want a liturgical church service? It's there. Do you want a contemporary worship service with a slick worship band? It's there. One comedian's video "Virtual Reality Church" hilariously parodies the way that virtual churches can cater to the personal preferences and laziness of their parishioners.¹⁸ But the point still stands: as an extension of the internet, VR provides for us what we search for. VR can proctor the experience for anyone to do anything anywhere, and at first glance, it seems that this possibility would wildly expand our imaginations. Yet, paradoxically, if we fail to look beyond the reality portrayed in VR simulations, VR can profoundly limit our imaginations. Precisely because VR caters entirely to our preferences and notions of reality, VR can prove to be a dull instrument to challenge our preconceptions about reality. And because the internet and VR are shared social spaces, these technologies can be used to reinforce societal prejudices and preconceptions.¹⁹

And what about the tragedy of pornography?²⁰ Christian communities are becoming increasingly aware of the pervasive and destructive influences of pornography. Pornography addiction is no doubt one of the most widespread expressions of addictive behavior on the internet. A recent study by the Barna Group has exposed the high percentage of Christians and church leaders who use pornography on an ongoing basis or have used pornography in the past.²¹ We contest that one of the terrible consequences of pornography use in the Christian community, in addition to its deleterious influences on personal and professional relationships, is the way in which it cripples church leaders from responsible investigation and deployment of digital strategies for ministry. If we ourselves have experienced digital

addiction in the past—whether pornography or other addictive online behaviors—we are likely to be reserved in our applications of digital media for ministry purposes in the future. It is true that the pornography industry will certainly fight hard for market share in the VR space. Some may need to opt out of VR ministry because of a past addictive behavior, and this is appropriate. But it would be tragic for the Christian community *en masse* to step away from the technology merely because it has a tainted reputation or because the technology is set to perverse uses elsewhere.

VR no more belongs to the devil than does the electric guitar. Mark Howe could write in 2008: “Much Christian reaction to the Internet is quite superficial, and, predictably, obsessed with sex. Yes, there’s unsavoury content on the web, but a previous generation found their unsavoury content by mail order or in their corner shop, and Corinthian debauchery didn’t seem to be hampered by a lack of peer-to-peer networking.”²² In this instance as in others, reflective observers will note that the internet can be an agent of good or of evil.²³

While pornography may be the most destructive form of addictive behavior supported by the internet today, pornography is not the only insidious addiction that the internet perpetuates. Arguably more pervasive is the addiction of distraction. Far more difficult to recognize than many other sins, distraction is just as effective in removing our focus from God. Alan Noble comments: “For the vast majority of Americans who are above the poverty line, technology of distraction is an everyday experience.”²⁴ And although we tend to view distraction as a social or a technological problem, it rapidly translates into a theological problem.

Distraction lulls us into indefinitely postponing questions about life's meaning and purpose, questions that historically have led people to uncover the conviction of God's existence, love, and presence. "If I feel like there are no real answers to life's big questions, I can stay entertained all day long, and I don't have to deal with that anxiety," Noble observes. "At the end of the day, when I'm falling asleep, how do I know that I've done right today? Well, that used to be a problem for people—the few minutes that you had between the time you turned off your light and the time you fell asleep. You used to have to sit and stare into the darkness and look at your own soul. But now, with a smartphone that has all this technology, all this access to infinite entertainment, you can really just stare at a screen until you collapse." In a similar vein, Craig Detweiler laments: "So many of Jesus' transformative moments occurred on the road, where he is walking with his disciples between spaces. And we have now filled up so many of those in-between spaces with these digital distractions."²⁵

The fact that the internet can create echo chambers where we hear only the opinions that we want to hear, or that the internet can support pornography addictions, or that our smartphones can simply keep us in a state of perpetual distraction is not an argument against the reality that the internet can also be used responsibly. Good decisions are a matter of the heart, not the devices we use. VR, as an extension of internet technology, has these same pitfalls, and church communities will need to learn to guard against these by creating cultural boundaries of accountability and pastoral care.

9. VR Platforms Tend to Carry Hidden Biases in Their Definitions of Success

Like the social media platforms of today, the VR platforms of the future will likely carry hidden biases in their definitions of success. Analyzing the biases of these platforms and differentiating between the objectives of the VR platform and the objectives of the VR church will be an integral part of responsible Christian stewardship and effective ministry in these environments.

Whether it is “the Metaverse” in *Snow Crash* (1992), “the Matrix” in the eponymous film (1999), or “the Oasis” in *Ready Player One* (2011), science fiction of late has assumed that VR will produce a single, monolithic alternate reality. Following the model of the tech giants and social media platforms of today, it may be that VR gives rise to just a few, super-popular platforms. Based on the business model of the tech giants and social media platforms of today, we can anticipate that VR platforms will operate in a way that is quietly as profitable as possible for their parent companies. It will be important for Christian users to analyze these pressures and ensure that their use of the medium aligns with their own mission and goals. When a team of Christians plants a church in a new city or in a new country, it is important for this team to analyze the local culture and to get a clear sense of how social expectations may conflict or align with the ministry model that the team is trying to foster. When conducting ministry on a digital platform, it is important to analyze first how this platform defines success and sets up expectations for use cases. The way these platforms define success is invariably tied to the business model of the company supporting the platform.

Google, Facebook, and the pantheon of social media platforms earn their income by selling advertising. This means that these companies give out their products for free (e.g., Google searches or Facebook profiles) but then collect as much data about their users as possible in order to sell advertising that is as profitable as possible. The Harvard Business School professor, Shoshana Zuboff, titles this precarious socioeconomic arrangement “surveillance capitalism.”²⁶ When I write an email via a free email service, the company pays its bills by having its computers read my emails and selling this information to advertisers in a legally sanctioned packaging. As former Chairman of the Federal Communications Commission, Tom Wheeler, says: “If you are not paying for an online product, then you *are* the product as information about you is collected and monetized.”²⁷

Facebook’s business model is also based on advertising. The more time you spend on Facebook, the more money Facebook earns from its advertising sales. This means that while Facebook is also a “free” product, you actually pay Facebook for the use of their product by the time you spend on their platform. After all, time is money. This may help to explain why social media platforms seem to perpetuate controversy. Social media platforms are incentivized to do anything—including foster fruitless and spiteful arguments—that lead users to extend their sessions longer or to check back again sooner. And if the isolation from broken relationships in the real world leads to further use of the social media platform, then this only fuels advertising sales and reinforces the company’s business model. The business plans of the tech giants of today is to sell advertising, which means that these companies traffic in wasted time. If we intend to use these

platforms for the purposes of Christian ministry, we will need to guard fiercely against distraction.

What this boils down to is that Christian ministries cannot rely on the metrics provided by the social media platforms themselves to define success. Success on YouTube is represented by the number of views for each video uploaded, because this drives advertising revenue back to Google. But the aim of a Christian ministry is not to enrich Google. Success on Facebook is defined as the number of Friends in one's network and the level of interaction between these Friends, again because this strengthens Facebook's brand, but churches exist for something more than to fill Facebook's coffers. When using VR platforms for ministry, we must first analyze the inherent biases in the medium and design our ministries to navigate and even mitigate these biases.

It's not easy to find exact data about the amount of time that the average user spends on social media, but a reasonable estimate appears to be that there are about four billion users of social media globally, and that the average user is on social media for about 2.5 hours per day.²⁸ What would happen if social media companies noted a clear correlation between profession of Christian faith and reduced social media use? What would happen if those who had been disciplined in VR churches tended to use social media less, maybe for thirty minutes each day on average? Presumably this could lead social media companies to create policies that make it tougher for Christians to use their platforms for ministry purposes.

But we trust that Christian groups would have the courage to do the right thing, pursuing what is best for society even when this is at odds with the business models of powerful

companies. When Paul had spent about three years preaching in Ephesus, his presentation of the gospel proved so successful that the silversmiths in the area detected a dip in revenue from the sales of their statues of the goddess Artemis (see Acts 19:21–41). This finally led to a riot that drove Paul and his missionary associates out of the city. We shouldn't expect that online platforms will always be welcoming places for Christian mission.

10. VR Is Based in Digital Computer Technology

For the foreseeable future, VR will inherit the limitations of digital computer products.

VR technology is a product of the digital computer industry, and as such VR products will remain relatively expensive, will require significant amounts of electricity, will have to be updated or replaced often, and will probably remain vulnerable to impacts, water damage, and extreme changes in temperatures. VR equipment will likely not soon overcome these basic limitations inherent in all digital computer products today. VR carries with it not only the limitations of electronic technology generally but also the specific challenges of a brand-new electronic technology. VR places tremendous pressure on even the most powerful computers and the fastest internet connections.

Will new kinds of computers become available in the future that will dramatically change the performance of our VR headsets and maybe even the fundamental way they work? The answer to this question is almost certainly “yes,” but the next question of “when” is almost totally unknown. Many advocate quantum computing as the platform most likely to supersede digital computing, but will this revolution take place fifteen

years from now or in a hundred and fifty years? Some theorists posit that biological computers may yet be developed next after quantum computing, but determining which new computer platforms may arrive in which order and when is entirely incalculable at this point. For the foreseeable future, while VR remains firmly planted within the industry of digital computer products, this means that part and parcel of doing ministry in VR will be ensuring that everyone has adequate access to the technology and skills to use the technology. Just as the construction and upkeep of church buildings of the past and present is no small undertaking, so the development and maintaining of technology networks for ministry purposes will require skill, wisdom, and hard work as we move forward.

What will the VR of tomorrow look like, and how will we use this emerging technology for ministry purposes? To return for a moment to our illustration from the world of the nineteenth-century railroad, if we could somehow go back in time to around the year 1876 and conduct a study about the future of trains, we probably would have correctly articulated some of the dynamics that continue to govern the use of trains today. But there would have been no way possible for us to anticipate that new kinds of trains would emerge, such as the New York City subway, or airport people movers, or the proposed Hyperloop. Although each of these inventions could be considered a new kind of train, these “trains” are substantially different from those that first conquered the western plains. From an intimate knowledge of the machinery of steam locomotives of the early nineteenth century, there would have been no way to anticipate that the trains of the future could operate underground, inside cavernous depots, or even be propelled by magnets at supersonic

speeds through airless tubes, and this is because in each instance the technology was reimagined with significant advancements in its power supply and also with a significantly different purpose and context.

VR will continue to change and develop in the years ahead, and at each turn there will be an opportunity for ministers of the gospel to apply this technology to new ministry contexts. There is an immense opportunity on the horizon to apply the emerging medium of VR to communicate the gospel and to advance the mission of the church in the world. But acting as wise stewards of these technological possibilities will require us to understand the medium. Mark Howe makes this point with the ironic statement: "Email becomes a way to send a letter without having to lick a stamp, and websites are a way to publish huge screeds of Calvinistic text without the irritation of proof readers. Of course, it is perfectly possible to use the Internet this way, but doing so can create a false impression that nothing has really changed, and thus postpone the need for a radical response."²⁹ Only by carefully analyzing the particular strengths and weaknesses of VR as a distinct media type will we be able to take advantage of its unique communicative abilities to convey the gospel message to the world.

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