

The Legal Considerations for Offering Metaverse-Based Education

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[The] power of amusement and, it may be, education, the audiences they assemble, not of women alone nor of men alone, but together, not of adults only, but of children, make them the more insidious in corruption by a pretense of worthy purpose or if they should degenerate from worthy purpose. Indeed, we may go beyond that possibility. They take their attraction from the general interest, eager and wholesome it may be, in their subjects, but a prurient interest may be excited and appealed to. Besides, there are some things which should not have pictorial representation in public places and to all audiences.

— *Mut. Film Corp. v. Indus. Comm'n*, 236 U.S. 230, 242 (1915)
(upholding the censorship laws regarding silent films), *overruled*
by *Joseph Burstyn, Inc. v. Wilson*, 343 U.S. 495 (1952).

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Introduction

Shared virtual worlds have been a staple of science fiction since nearly the genre's inception and the term "metaverse" was itself introduced by Neal Stephenson in the novel *Snow Crash*.¹ A metaverse is virtual reality world generated by computer systems as depicted benignly in "Ready Player One" or more ominously in "The Matrix." Although the metaverse is still in its early stages, those emerging metaverse platforms such as Roblox and Fortnite have over 400 million monthly active users and "51% of the metaverse user base is 13 or younger."² In other words, the future is here. As predicted, it is not evenly distributed.³ Instead, it seems the little children shall lead us into the widespread adoption of the new metaverse environment.⁴ Today, a multitude of recent metaverse platforms have joined Second Life, Roblox, and Fortnite to push the experience towards the science fiction potential vision of the ubiquitous online existence. These include Meta Horizons (from Facebook), Decentraland, Nvidia Omniverse, The Sandbox, and Otherside (by Yuga Labs).⁵

The article employs the common but misdescriptive description of "the metaverse," which falsely suggests that there is a single experience open to all users. Instead, there are dozens, if not hundreds of discrete online environments that provide a virtual or augmented reality experience in which participants can interact with their environment and each other in a persistent fictional reality, which meets the minimum requirements for a platform to be considered a virtual world.⁶ Although it would be preferable to describe the multiverse of competing and complementary metaverse platforms, the term metaverse can be understood to refer to the multiverse of metaverses, as well as each individual metaverse.⁷

¹ Jason Nelson, 'Snow Crash' Author Neal Stephenson Is Building a 'Free Metaverse' Called Lamina1, DECRYPT (June 11, 2022), <https://decrypt.co/102646/snow-crash-author-neal-stephenson-is-building-a-free-metaverse-called-lamina1>.

² 31 Hristina Nikolovska, *Metaverse Statistics to Prepare You for the Future*, BANKLESS TIMES (Dec. 13, 2022), <https://www.banklesstimes.com/metaverse-statistics/>.

³ Quote generally attributed to William Gibson. See Pagan Kennedy, *William Gibson's Future Is Now*, N.Y. TIMES (Jan. 13, 2012), <https://www.nytimes.com/2012/01/15/books/review/distrust-that-particular-flavor-by-william-gibson-book-review.html> ("[T]his quote is often attributed to Gibson, though no one seems to be able to pin down when or if he actually said it. Still, it neatly sums up his own particular flavor."); see also *The Future Has Arrived — It's Just Not Evenly Distributed Yet*, QUOTE INVESTIGATOR (Jan. 24, 2012), <https://quoteinvestigator.com/2012/01/24/future-has-arrived/> (providing an outline of the evolution of the quote with attribution to Gibson and a nod to Marshall McLuhan and Alvin Toffler).

⁴ See generally Isaiah 11:6 ("And the wolf shall dwell with the lamb, and the leopard shall lie down with the kid; and the calf and the young lion and the fatling together; and a little child shall lead them.").

⁵ Bernard Marr, *The 10 Best Examples Of The Metaverse Everyone Should Know About*, FORBES (May 16, 2022), <https://www.forbes.com/sites/bernardmarr/2022/05/16/the-10-best-examples-of-the-metaverse-everyone-should-know-about/>.

⁶ See Deepan Ghimiray, *What is the Metaverse?*, AVAST (Sept. 1, 2022), www.avast.com/c-metaverse ("The metaverse is a virtual reality of networked 3D worlds where you can socialize, work, shop, and play. Blurring the line between real life and digital life, the metaverse combines virtual, augmented, and physical reality into a graphically rich world that you interact with through an avatar.").

⁷ See Eric Peckham, *A multiverse, not the metaverse. Why gaming's virtual worlds are the next stage of social media*, TECHCRUNCH (Feb. 25, 2020), <https://techcrunch.com/2020/02/25/virtual-worlds-intro/> ("Multiverse virtual worlds will come to function almost like new countries in our society, countries that exist in cyberspace rather than physical locations but have complex economic and political systems that interact with the physical world.").

Like every medium, the metaverse offers tremendous opportunities to teach specific lessons. In formal education, it can be harnessed to improve interactivity in learning, to individualize lesson plans, and to provide tools for those students who might be limited in their ability to participate in traditional classrooms. At the same time, the metaverse has the potential to inculcate other lessons, both intended and unintended, by publishers of the metaverse content, the instructors who facilitate the formal education, and the multitude of others who participate in the learning experience.

Education occurs in every human interaction, and the metaverse is no different. Nonetheless, this article focuses on the use of the metaverse in formal education, particularly that of primary education for children, adolescents, and teens. Although it sometimes contrasts the formal educational experience with the “after class” activities or “out of school” activities, the issues being raised focus on the obligations of educators who wish to integrate the metaverse into their public and private educational services.⁸

After providing a brief overview of the metaverse, the article looks at the legal and ethical concerns that should be at the forefront of creating the educational metaverse in greater depth. The article discusses how legal requirements under COPPA, FERPA, and the Rehabilitation Act will impact the design and operation of educational metaverses. The article highlights the need for improved diversity, equity and inclusion decisions to promote an ethical user experience. Finally, the article suggests that the role for intellectual property protection in an online educational environment requires efforts to protect students’ rights to their creative works.

1. All Entertainment is a Medium for Truth Protected by the First Amendment

A review of film, radio, gaming, and print media provide some helpful context for publishers considering the development of a metaverse, particularly that of an educational metaverse. Although the metaverse may be a relatively new medium, it employs many of the same attributes as exist in these other media, and therefore it will be subject to those earlier media rules either by direct application or by analogy.

First, consider the obligation to produce “truthful” content. In fall of 2022, the Netflix streaming service ran afoul of the British Monarchy for a pair of “invidious” productions, the fifth season of the widely popular fictionalization of the Royal Family in “The Crown,” and the documentary series “Harry & Meghan,” a six-part documentary series.⁹ The first was widely criticized as inaccurate and the second was viewed as an invasion of privacy.¹⁰ Recent movies and series such as “BlacKkKlansman,” “Green Book,” “Mary Queen of Scots,” “Dahmer,” and most other historical screen portrayals have been criticized for their inaccuracies.¹¹

⁸ For a general discussion of the roles of parents and caregivers as well as those of educators, see JON M. GARON, PARENTING FOR THE DIGITAL GENERATION (ROWAN & LITTLEFIELD 2022).

⁹ See Caroline Frost, *Royal Intimate Slams Netflix For “Trying To Destroy The Family” With ‘The Crown’; Says Prince Harry “Shouldn’t Take A Penny From Streamer,”* DEADLINE (October 23, 2022 6:17am), <https://deadline.com/2022/10/royal-friend-slams-netflix-vicious-royal-family-the-crown-says-prince-harry-shouldnt-take-money-from-streamer-1235152771/>; Thibault Spirlet, *Diana’s former butler rips into The Crown over ‘cruel’ portrayal of three women royals*, EXPRESS (Nov 15, 2022) <https://www.express.co.uk/news/royal/1696743/princess-diana-wales-the-crown-netflix-season-five-queen-elizabeth-ii-royal-family-vn>.

¹⁰ See *id.*

¹¹ Alex von Tunzelmann, *Rewriting the past: do historical movies have to be accurate?*, GUARDIAN (Feb 1, 2019) <https://www.theguardian.com/film/2019/feb/01/rewriting-the-past-do-historical-movies-have-to-be-accurate>; Christian Zilko, *Journalist Who Broke Jeffrey Dahmer Story Criticizes Inaccuracies in Netflix Series: ‘Not a Helpful*

Historians, journalists, and critics often object to the creative license taken in films and television, meant to heighten drama or imbue a larger truth while omitting some details and rewriting important aspects of the factual record. The producers of these works are entitled to take such license, because, after all, they are creating works of entertainment. But in reality, these works do much more. These works also educate the public and shape our understanding of history.¹²

Film and television are not alone.¹³ Technologists have expected every major communicative advancement to propel the dissemination of knowledge and promote student learning, and each has been criticized for its failure to achieve these goals, or worse, for its role in harming education. Plato, purporting to quote the dialogues of Socrates, began this tradition with a criticism of the written text:

[N]ow you, [Phaedrus] who are the father of letters, have been led by your affection to ascribe to them a power the opposite of that which they really possess. For this invention will produce forgetfulness in the minds of those who learn to use it, because they will not practice their memory. Their trust in writing, produced by external characters which are no part of themselves, will discourage the use of their own memory within them. You have invented an elixir not of memory, but of reminding; and you offer your pupils the appearance of wisdom, not true wisdom, for they will read many things without instruction and will therefore seem to know many things, when they are for the most part ignorant and hard to get along with, since they are not wise, but only appear wise.¹⁴

Books have been burned for threatening authoritarian rule, religious dogma, and insidious ideas.¹⁵ Radio broadcasts and later television programming was heralded for eliminating the barriers to access for rural Americans and other children as well as adult learners who could not access schoolhouses.¹⁶ But even though these technologies did not transform formal education,

Representation, INDIEWIRE (Oct. 1, 2022), <https://www.indiewire.com/2022/10/dahmer-journalist-says-netflix-series-is-inaccurate-1234768696/>.

¹² See, e.g., *Mut. Film Corp. v. Indus. Comm'n*, 236 U.S. 230, 242 (1915) (upholding Ohio law which allowed “[o]nly such films as are, in the judgment and discretion of the board of censors, of a moral, educational, or amusing and harmless character shall be passed and approved by such board” as subject to the same content regulation as circuses and theatrical productions), *overruled by* *Joseph Burstyn, Inc. v. Wilson*, 343 U.S. 495 (1952); *Brown v. Ent. Merchants Ass'n*, 564 U.S. 786, 797 (2011) (striking down laws designed to categorize ultra-violent content provided to minors as “obscene.” The Court noted that every medium had such attempted regulation starting with film. “Radio dramas were next, and then came comic books. Many in the late 1940’s and early 1950’s blamed comic books for fostering a “preoccupation with violence and horror” among the young, leading to a rising juvenile crime rate.”).

¹³ See *id.*

¹⁴ Plato’s dialogue *Phaedrus* 274c-277a (Socrates’ dialogue with Phaedrus), <https://www.perseus.tufts.edu/hopper/text?doc=Perseus%3Atext%3A1999.01.0174%3Atext%3DPhaedrus%3Asecti%3D275b>.

¹⁵ See Lorraine Boissoneault, *A Brief History of Book Burning, From the Printing Press to Internet Archives*, SMITHSONIAN (Aug. 31, 2017), <https://www.smithsonianmag.com/history/brief-history-book-burning-printing-press-internet-archives-180964697/> (discussing Chinese emperor Qin Shi Huang, the Catholic Church, al-Qaida, Nazis, and Mao Zedong).

¹⁶ See e.g., Matt Novak, *15 Technologies That Were Supposed To Change Education Forever*, GIZMODO (Jan. 16, 2014), <https://www.gizmodo.com.au/2014/01/15-technologies-that-were-supposed-to-change-education-forever/>.

they had a powerful impact on the public's knowledge and its understanding of the world in which we live.

The 1969 launch of *Sesame Street*, for example, transformed the understanding of early education and prominently embraced integration and diversity, normalizing a world that was rarely to be seen on the actual streets of America.¹⁷ *Gunsmoke* and the Western genre created the American mythology;¹⁸ *All in the Family* captured and normalized the post-60s world of modern liberalism;¹⁹ *Modern Family* broke taboos on homosexuality, helping promote the end to sex-based marital discrimination;²⁰ *The West Wing* educated (or miseducated) the public on the inner life of American politics;²¹ and *Fox News* redefined and promoted the political conservative movement.²² These programs shaped hundreds of millions of individuals' views and educated generations of viewers. "Television was the central element in the media-based public sphere in the last half of the twentieth century. It gathered by far the largest audience . . . Television was the key link between

¹⁷ See Lise Guernsey, *How Sesame Street Changed the World*, NEWSWEEK, May 22, 2009, <https://www.newsweek.com/how-sesame-street-changed-world-80067> (last visited Sept. 2021) ("Sesame Street is no ordinary nonprofit. It is, arguably, the most important children's program in the history of television. No show has affected the way we think about education, parenting, childhood development and cultural diversity, both in the United States and abroad, more than Big Bird and friends.").

¹⁸ See Alfred Siewers, *What I Learned About American Culture By Binging On 'Gunsmoke' And 'House Of Cards'*, FEDERALIST, June 22, 2017, <https://thefederalist.com/2017/06/22/what-i-learned-about-american-culture-by-binging-on-gunsmoke-and-house-of-cards/> (last visited Sept. 2021) ("Gunsmoke" on CBS claims to be the world's longest-running prime-time TV drama series with the same star and setting, from 1955 to 1975. One TV critic memorialized its Western mythology as 'the Iliad and the Odyssey' of America.").

¹⁹ See Sascha Cohen, *How Archie Bunker Forever Changed in the American Sitcom*, SMITHSONIAN, Mar. 21, 2018, <https://www.smithsonianmag.com/arts-culture/history-working-class-families-american-sitcom-180968555/> (last visited Sept. 21, 2021) ("All in the Family" was a groundbreaking commercial success, ranking number one in the Nielsen ratings for five years. By 1975, one-fifth of the entire country was tuning in. . . . 'All in the Family' opened the floodgates for more representations of the working poor in 1970s situation comedies.").

²⁰ See Spencer Kornhaber, *The Modern Family Effect: Pop Culture's Role in the Gay-Marriage Revolution*, ATLANTIC, June 26, 2015, <https://www.theatlantic.com/entertainment/archive/2015/06/gay-marriage-legalized-modern-family-pop-culture/397013/> (last visited Sept. 21, 2021) ("It's impossible to know how much entertainment ever drives society rather than merely reflecting it. But it's hard to avoid the feeling that the past five or six years have seen a virtuous cultural cycle. 2009 was the year that audiences met Cam and Mitch, a gay couple living together with an adopted daughter.").

²¹ See Lynn Spigel, *Entertainment Wars: Television Culture after 9/11*, 56AM. QUARTERLY 2 (June 2004); Yair Rosenberg, *Why 'The West Wing' Is a Terrible Guide to American Democracy*, ATLANTIC, Oct. 1, 2012 ("European Union Foreign Minister Catherine Ashton told Newsweek in 2010 that she learned about America and 'the mechanics of Washington life' from being 'an avid viewer of The West Wing.'").

²² See DAVID BROCK & ARI RABIN-HAVT, THE FOX EFFECT: HOW ROGER AILES TURNED A NETWORK INTO A PROPAGANDA MACHINE 11 (2012) ("the tail end of the 2008 election only marked the beginning of a larger transition at the network, one that would see Fox News change from a network that provided a conservative outlook on the news to an active and unapologetic mouthpiece for the Republican Party.").

society's public life and the private lives of citizens.”²³ The norm—the status quo—was televised.²⁴

Media has a tremendous power to shape, inform, and influence. The metaverse will be no different. For those immersed in a total, sensory experience, the lessons learned and the experiences lived have the potential to drive deep into the participants' psyche. However, done poorly, the metaverse might be an uninspiring, unimpactful, and boring wasteland.²⁵ Interactivity does not guarantee engaging.

Every experience is a learning experience. Just as with television, film, theater, and music, each entertainment experience also imparts powerful lessons. Some productions have explicit messages that are readily recognized by an audience, while other productions embed their truth-telling much more subtly. People learn from their surroundings, whether it is in a sports field, museum, or through a computer screen. The Supreme Court recognized this power when it extended First Amendment protection to motion pictures. “It cannot be doubted that motion pictures are a significant medium for the communication of ideas. They may affect public attitudes and behavior in a variety of ways, ranging from direct espousal of a political or social doctrine to the subtle shaping of thought which characterizes all artistic expression.”²⁶ The Supreme Court recognized the same potential in video games.

Like the protected books, plays, and movies that preceded them, video games communicate ideas—and even social messages—through many familiar literary devices (such as characters, dialogue, plot, and music) and through features distinctive to the medium (such as the player's interaction with the virtual world). That suffices to confer First Amendment protection. Under our Constitution, “esthetic and moral judgments about art and literature ... are for the individual to make, not for the Government to decree, even with the mandate or approval of a majority.”²⁷

The First Amendment, therefore, protects the creators of the metaverse in precisely the same way it protects book publishers, filmmakers, and visual artists. There are limits such as the public protections against defamatory speech²⁸ or invasions of privacy.²⁹ The government also retains the

²³ JOSTEIN GRIPSRUD, *Relocating TELEVISION: TELEVISION IN THE DIGITAL CONTEXT 3* (2010). *Cf.*, Gil Scott-Heron, *The Revolution Will Not Be Televised*, RCA/FLYING DUTCHMAN LABEL (1971) (illustrating the tension between the majority culture captured on television and the “revolutionary” culture reflected in the African-American experience that was substantially excluded from popular media).

²⁴ Jon M. Garon, *Constitutional Limits on Administrative Agencies in Cyberspace*, 8 BELMONT L. REV. 499 (2021) (footnotes from excerpt from the original).

²⁵ *See, e.g.*, Sean Murray, *Meta Employee Says Horizon Worlds Is "Sad" And "Empty", Player Count Falls Far Short of Targets*, THE GAMER (Oct. 16, 2022), <https://www.thegamer.com/meta-horizon-worlds-sad-empty/>.

²⁶ *Joseph Burstyn, Inc. v. Wilson*, 343 U.S. at 498.

²⁷ *Brown v. Ent. Merchants Ass'n*, 564 U.S. at 790 (2011) *quoting* *United States v. Playboy Entertainment Group, Inc.*, 529 U.S. 803, 818 (2000).

²⁸ *See, e.g.*, *New York Times Co. v. Sullivan*, 376 U.S. 254 (1964) (establishing actual malice requirement for libel of public officials); *Curtis Publishing Co. v. Butts* 388 U.S. 130 (1967) (extending actual malice standard to public figures) *Associated Press v. Walker* 388 U.S. 130 (1967) (same).

²⁹ *See, e.g.*, *Time, Inc. v. Hill*, 385 US 374 (1967) (recognizing a right of privacy while limiting its scope in matters of public interest). *See also* *Zacchini v. Scripps-Howard Broadcasting Co.*, 433 U.S. 562 (1977) (recognizing the privacy-offshoot right of publicity as not being precluded by the First Amendment).

power to promulgate content-neutral, reasonable time, place, and manner restrictions.³⁰ But given the expansive nature of the First Amendment, the role of government regulations will generally be quite limited outside of the general prohibitions against obscenity, protections of minors' privacy, and as conditions on receiving federal funding.³¹

The educational metaverse's focus on pupils of all ages adds an additional consideration to the regulation of the First Amendment. Educational institutions play an *in loco parentis* role when the students are under the direction and control of the institution.³² But the role of the school and its contractual affiliates is limited in this regard.

The foundational position on student First Amendment rights is *Tinker v. Des Moines Indep. Cmty Sch. Dist.*³³ There, three young pupils (ages 13, 15, and 16) protested the war in Vietnam by wearing small black homemade arm bands to school as well as by fasting, for which they were suspended.³⁴ In the face of this silent student protest, the Supreme Court provided the framework for the protection of student speech. "First Amendment rights, applied in light of the special characteristics of the school environment, are available to teachers and students. It can hardly be argued that either students or teachers shed their constitutional rights to freedom of speech or expression at the schoolhouse gate."³⁵ As a result, the Supreme Court "held in *Tinker* that a public high school could not constitutionally prohibit a peaceful student political demonstration consisting of 'pure speech' on school property during the school day."³⁶

In the educational metaverse, it is easy to imagine the multitude of ways in which students can modify their avatars to reproduce statements of protest. Since every aspect of an avatar can theoretically be modified—depending on the design features provided by the metaverse publisher—students can use their avatars for an unlimited range of communicative activities.

Of course, the *in loco parentis* role of the school is not forgotten. *Tinker* itself highlighted the "silent, passive expression of opinion, unaccompanied by any disorder or disturbance on the part of petitioners."³⁷ In subsequent cases, the Supreme Court has made it clear that "indecent," "lewd," or "vulgar" speech within the school, such as during classes, at school assemblies,³⁸ or even on

³⁰ *Ward v. Rock Against Racism*, 491 U.S. 781 (1989); *Clark v. Commun. for Nonviolence*, 468 U.S. 288 (1984).

³¹ *See, e.g., Children's Online Privacy Protection Act (COPPA)*, Pub. L. No. 105-277, 112 Stat. 2681 (1998) (requiring personal information of minors under thirteen to be restricted and targeted advertising not to be addressed at these minors without consent of parents or guardians); *United States v. American Library Assn., Inc.*, 539 U.S. 194 (2003) (upholding the constitutionality of requiring that public libraries install anti-indecency filters on internet-enabled computers as a condition of receiving low cost internet provided in the E-rate program established by the Telecommunications Act of 1996 110 Stat. 71, 47 U. S. C. § 254(h)(1)(B) and mandated as a condition for receiving grants under the Library Services and Technology Act (LSTA), 20 U. S. C. § 9101.)

³² *See Bethel School Dist. No. 403 v. Fraser*, 478 U.S. 675, 684 (1986).

³³ *Tinker v. Des Moines Indep. Cmty Sch. Dist.* 393 U.S. 503, 506 (1969).

³⁴ *Tinker*, 393 U.S. at 504 ("They did not return to school until after the planned period for wearing armbands had expired—that is, until after New Year's Day.").

³⁵ *Id.* at 506.

³⁶ *Mahanoy Area Sch. Dist. v. B. L. by and through Levy*, 141 S. Ct. 2038, 2044-45 (*quoting Tinker*, 393 U.S., at 505-506, 514).

³⁷ *Id.* at 508.

³⁸ *Bethel School Dist. No. 403 v. Fraser*, 478 U.S. at 684.

school grounds³⁹ as well as speech that is inappropriate for promoting “illegal drug use”⁴⁰ are all subject to the discipline contemplated under *Tinker*.⁴¹ The Supreme Court recently explained that “in *Tinker*, we said schools have a special interest in regulating speech that “materially disrupts classwork or involves substantial disorder or invasion of the rights of others.” These special characteristics call for special leeway when schools regulate speech that occurs under its supervision.”⁴² In addition, the school can also control its own speech, including all curriculum as well as school-sponsored activities such as a school-sponsored newspaper.⁴³

In *Mahanoy Area Sch. Dist. v. B. L. by and through Levy*, the Supreme Court also addressed for the first time where the limits of the school’s authority over its pupils might end, in the context of social media. B. L., a high school freshman, failed to make the varsity cheerleading squad, earning only a spot on the junior varsity squad instead. That weekend, following her disappointment, “B. L. posted the images to her Snapchat ‘story,’ [showing] B. L. and a friend with middle fingers raised; it bore the caption: ‘Fuck school fuck softball fuck cheer fuck everything.’”⁴⁴ Given the vulgarity involved and the heightened expectations placed on students who represent the schools in extracurricular activities, the school thought it appropriate to react. “As a result, the coaches suspended B. L. from the junior varsity cheerleading squad for the upcoming year.”⁴⁵

The challenge for the school, however, was that the vulgarity did not occur at school or at a school-sanctioned activity. It was on the weekend and sent to B. L.’s 250 followers on Snapchat. The Supreme Court granted certiorari because the Third Circuit held that schools never had authority to police off-campus speech. “Unlike the Third Circuit,” the Supreme Court explained, “we do not believe the special characteristics that give schools additional license to regulate student speech always disappear when a school regulates speech that takes place off campus. The school’s regulatory interests remain significant in some off-campus circumstances.”⁴⁶ The Supreme Court recognized that in the online environment, there are situations where being off campus does not end the obligation of the school.

The parties’ briefs, and those of *amici*, list several types of off-campus behavior that may call for school regulation. These include serious or severe bullying or harassment targeting particular individuals; threats aimed at teachers or other students; the failure to follow rules concerning lessons, the writing of papers, the use of computers, or participation in other online school activities; and breaches of school security devices, including material maintained within school computers.⁴⁷

³⁹ *Mahanoy*, 141 S. Ct. at 2045. *See also* *Layshock ex rel. Layshock v. Hermitage Sch. Dist.*, 650 F.3d 205, 216 (3d Cir. 2011) (en banc) (the boundary demarcating schools’ heightened authority to regulate student speech “is not constructed solely of the bricks and mortar surrounding the school yard.”)

⁴⁰ *Morse v. Frederick*, 551 U.S. 393, 409 (2007).

⁴¹ *Mahanoy*, 141 S. Ct. at 2045; *Tinker*, 393 U.S. at 508–09.

⁴² *Mahanoy*, 141 S. Ct. at 2044 (*quoting Tinker*, 393 U.S. at 513).

⁴³ *Hazelwood School Dist. v. Kuhlmeier*, 484 U.S. 260, 271 (1988).

⁴⁴ *Mahanoy*, 141 S. Ct. at 2043.

⁴⁵ *Id.*

⁴⁶ *Id.* at 2045.

⁴⁷ *Id.*

The *Mahanoy* opinion provides a framework for regulation of student speech that will be essential for understanding how to address the inevitable conflicts that emerge in the educational metaverse, particularly during sessions not under the direct control of teachers, coaches, and instructors. The Supreme Court explained the regulatory approach to be developed in updating *Tinker* for the internet:

[W]e do not now set forth a broad, highly general First Amendment rule stating just what counts as “off campus” speech and whether or how ordinary First Amendment standards must give way off campus to a school’s special need to prevent, *e.g.*, substantial disruption of learning-related activities or the protection of those who make up a school community.

We can, however, mention three features of off-campus speech that often, even if not always, distinguish schools’ efforts to regulate that speech from their efforts to regulate on-campus speech. Those features diminish the strength of the unique educational characteristics that might call for special First Amendment leeway.

First, a school, in relation to off-campus speech, will rarely stand *in loco parentis*. The doctrine of *in loco parentis* treats school administrators as standing in the place of students’ parents under circumstances where the children’s actual parents cannot protect, guide, and discipline them. Geographically speaking, off-campus speech will normally fall within the zone of parental, rather than school-related, responsibility.

Second, from the student speaker’s perspective, regulations of off-campus speech, when coupled with regulations of on-campus speech, include all the speech a student utters during the full 24-hour day. That means courts must be more skeptical of a school’s efforts to regulate off-campus speech, for doing so may mean the student cannot engage in that kind of speech at all. When it comes to political or religious speech that occurs outside school or a school program or activity, the school will have a heavy burden to justify intervention.

Third, the school itself has an interest in protecting a student’s unpopular expression, especially when the expression takes place off campus. America’s public schools are the nurseries of democracy. Our representative democracy only works if we protect the “marketplace of ideas.” This free exchange facilitates an informed public opinion, which, when transmitted to lawmakers, helps produce laws that reflect the People’s will. That protection must include the protection of unpopular ideas, for popular ideas have less need for protection.⁴⁸

When considering how to incorporate this constitutional requirement into the provision of virtual reality resources in classroom settings, it will be important to consider different expectations of behavior for those uses of the platform that occur when school is in session from those where the same activities are undertaken by students on their own. The lack of the school as supervisor is significant. Not only will these differences be important for the school to understand, it will also be important for the schools to inform and educate the pupils and students of these differences so that the parental role can be increased outside of class time.⁴⁹

⁴⁸ *Id.* at 2045-46.

⁴⁹ *See, e.g.*, Corrina Allen, The Parents’ Guide to the Metaverse, MyDoh (Aug. 24, 2022), <https://www.mydoh.ca/learn/blog/lifestyle/the-parents-guide-to-the-metaverse/>; *Parents’ Guide to the Metaverse*, SECURITY.ORG (May 12, 2022), <https://www.security.org/digital-safety/parents-metaverse-guide/>; Marina Watt,

2. The Medium of the Metaverse

Constitutional protections are only one consequence of considering the metaverse as a discrete communications and entertainment medium. This understanding should drive the decisions involving the user experience on each metaverse platform. For example, media can be classified depending on the relationship between the content provider and content recipient. At one end of the spectrum is the broadcast model in which the content provider distributes its message to the public, potentially a global audience. This one-to-many distribution is known for its maximum reach. Because there is no interaction between the content provider and the public, however, there is little richness to that message.⁵⁰ Prior to the internet, the transaction costs involved in global media distribution necessarily limited the scope of the content as well as the interactivity, but that restriction—and the economic business models which relied on those transaction costs—were all disintermediated with the advent of the interactive internet.⁵¹

Television, as a one-to-many medium, also falls into this category.⁵² Early radio was heard by families and groups sitting around large instruments. The cost and relative scarcity of the devices tended to make it a more communal experience.⁵³ Over time, however, the radio evolved from a living room console to a pocket transistor and some of its communal aspect was diminished.

At the other end of the content richness spectrum is the in-house sales pitch, popularized by the old-fashioned door-to-door salesman that originated with the Fuller Brush Company and the house parties designed to let women sell products for Avon, Tupperware, and Mary Kay.⁵⁴ These events allowed a great deal of interaction and customization so that the participants could maximize their learning during the sessions. They also proved quite profitable as a sales technique. From a communications perspective, they may best be described as few-to-few communications experiences.

Theatrical performances as well as concerts are social activities. Although they remain primarily a one-to-many modality, the reactions by the audience inform and subtly shape the live performances on the stage. Even a motion picture presentation has some interactivity. Although the motion picture cannot respond to the audience, each audience member responds to the larger public, altering and (hopefully) enhancing the viewing experience.

Letters / *How parents can help kids get the most out of the metaverse*, S. CHINA MORNING POST (May 2, 2022), <https://www.scmp.com/comment/letters/article/3175583/how-parents-can-help-kids-get-most-out-metaverse>.

⁵⁰ Philip B. Evans & Thomas S. Wurster, *Strategy and the New Economics of Information*, 75 HARV. BUS. REV. 70, 71 (1997). *See generally*, PHILIP B. EVANS & THOMAS S. WURSTER, *BLOWN TO BITS: HOW THE NEW ECONOMICS OF INFORMATION TRANSFORMS STRATEGY* (1999).

⁵¹ Evans & Wurster, *supra* note __ at 71-74.

⁵² *See, e.g.*, CHRISTIAN FUCHS, *INTERNET AND SOCIETY: SOCIAL THEORY IN THE INFORMATION AGE* 240 (2008) (“Traditional media such as television, radio, or printed media have a one-dimensional character; they only work in one direction from the sender to the receiver without possibilities for mutual interaction.”).

⁵³ *See, e.g.*, Karen Osburn, *Radio in the 1920s*, HISTORIC GENEVA (Jan. 14, 2014), <https://historicgeneva.org/recreation/radio-in-the-1920s/> (“Between 1923 and 1930 fully 60% of American families purchased radios and gathered around the new device to listen to nightly entertainment broadcasts.”).

⁵⁴ *See* Jessica Kosinski, *Selling from the Comfort of Your Own Home*, J. Antiques & Collectibles (Mar. 13, 2019), <https://journalofantiques.com/features/selling-from-the-comfort-of-your-own-home/> (“In its early years, direct sales in the United States were left up to traveling salesmen. ... That all changed in the early 1900s, when the concept of holding parties to peddle products to multiple people at once began to take off.”).

The internet unleashed the world's largest house party, creating the first true many-to-many communications medium. Through BBS, Usenet, MySpace, Facebook, Twitter, Discord, Reddit, Instagram, Tumblr, YouTube, and dozens of additional services, anyone with a computer or mobile device could create content and share that content with anyone else across the global stage. The power of the Tupperware party was unleashed to promote products, political ideologies, arts, hobbies, and anything on anyone's mind.

All other experiences fall somewhere between the one-to-many form of the global broadcast and the highly interactive, many-to-many engagement of social media.

Traditional classroom education is a "few-to-few" experience much like that of the house party. Depending on the size of the student body, the instructor provides information to the audience but also answers individual questions and interacts with each student. In most classrooms, the instructor encourages students to collaborate with each other and, through shared experiences, engage the lessons to interact with the material in a manner that facilitates deeply rooted memory and cognitive processing.

The metaverse, in this regard, already shares many of the attributes of the classroom and the house party. The metaverse derives from the intersection of two internet-age phenomena, that of a massively multiplayer online role-playing game (MMORPG) and that of social media.⁵⁵ Each of these media are themselves many-to-many experiences. In the MMORPG, participants come together to take on characters in a dynamic story setting with a goal of learning the lessons embedded in the game and through various challenges improving the attributes of the participant's character.

Social media is a many-to-many communications platform that allows anyone to post or share content and anyone to view or consume content. "Building things with friends within virtual worlds will become common, and major events within the most popular virtual worlds will become pop culture news stories."⁵⁶ Through mechanisms that allow participants to follow certain content producers as well as through content promotion controlled by each social media platform, certain content tends to dominate the social discourse, but these trends are highly dynamic and volatile.

The various iterations of the metaverse that is emerging derives from MMORPG games such as Fortnite with increasing opportunities for expansive social interaction. Since individuals participate by using virtual reality headsets, goggles, or glasses, the social interaction is often in small groups or private discussions.

These precursor attributes and the interactions they engender will drive the nature of the new medium. Marshall McLuhan explained, "[o]ur conventional response to all media, namely that it is how they are used that counts, is the numb stance of the technological idiot. For the 'content' of a medium is like the juicy piece of meat carried by the burglar to distract the watchdog of the mind."⁵⁷

Given that every medium encodes its own message, what will be the lesson imparted by the metaverse?⁵⁸ One possibility is that it extends the culture that has come to dominate some aspects

⁵⁵ See Peckham, *supra*, note __ ("The popularity of massive multiplayer online (MMO) gaming is exploding [P]eople will come to socialize as much in virtual worlds that evolved from games as they will on platforms like Instagram, Twitter and TikTok.").

⁵⁶ *Id.*

⁵⁷ MARSHALL MCLUHAN, UNDERSTANDING MEDIA: THE EXTENSIONS OF MAN __ (1964).

⁵⁸ See, e.g., Marshall McLuhan, Essential McLuhan 151 (1995) (Edited by Eric McLuhan and Frank Zingrone).

of its precursors in online gaming and social media. The publisher culture for both social media and online games has been predatory and toxic.⁵⁹ The online gaming environment brings with it a macho, competitive, and often misogynistic pseudo-warrior culture.⁶⁰

Fortnite, arguably the company most successfully developing the metaverse modality has recently acknowledged some of the predatory practices used to promote its business and the inappropriate online culture by paying record fines to the FCC for violating the Children’s Online Privacy Protection Act (COPPA) and employing “design tricks, known as dark patterns, to dupe millions of players into making unintentional purchases.”⁶¹

Fortnite publisher Epic Games, unsurprisingly, did not actually accept responsibility so much as blame failed legal regimes. “Statutes written decades ago don’t specify how gaming ecosystems should operate. The laws have not changed, but their application has evolved and long-standing industry practices are no longer enough. We accepted this agreement because we want Epic to be

The medium is the message. ...

The personal and social consequences of any medium—that is, of any extension of ourselves—result from the new scale that is introduced into our affairs by each extension of ourselves, or by any new technology. ...

[U]nderstanding media must mean the understanding of the effects of media. The objectives of new media have tended, fatally, to be set in terms of the parameters and frames of older media.”

Id. at 151, 180.

⁵⁹ See, e.g., Liat Franco & Khalid Ghanayim, *The Criminalization of Cyberbullying Among Children and Youth*, 17 SANTA CLARA J. INTL. L. I, 1 (2019) (“January 2013 witnessed the suicide of Carolina Picchio - a 14-year-old girl from Northern Italy - after a long period of cyberbullying.... On the day of her suicide, Picchio received some 2,600 denigrating and disparaging messages via WhatsApp.”); Lauren Cho, *The Downward Spiral of the Misogynistic Video Game Industry: It’s Truly Up to the “Last of Us”*, 42 LOY. L.A. ENT. L. REV. 175, 219 (2022) (discussing “the deep-rooted issue of misogyny in video games, and what underlies the toxic “bro culture.””); Young-nam Seo, Poong Oh & Woo Yeong Kil, *Into the Wolves’ Den: An Investigation of Predictors of Sexism in Online Games*, BEHAV. & INFO. TECH. 1 (2021) (factors driving online gaming sexism include “offline sexist beliefs (masculine norms and hostile sexism), game-related factors (perceived territoriality, advancement, and competition), and environmental factors (peer harassment and play time)”).

⁶⁰ See Stephanie Orme, *Esports and the “crisis” of masculinity in games*, Esports Research Network (July 9, 2020) <https://esportsresearch.net/2020/07/09/esports-and-the-crisis-of-masculinity-in-games/> (“Much has been written on the prevalence of toxic masculinity in gaming culture, including stereotypical depictions of masculinity and femininity in games, gender-based harassment in gaming spaces, and gendered labor inequalities in the development sector”) (internal citations omitted). See also Caitlin Ring Carlson *et. al.*, *Access Denied: How Online Harassment Limits Enjoyment of Offline Public Accommodations*, 57 GONZ. L. REV. 551, 578 (2022) (“Perhaps the most well-known example of troll storms affecting an individual’s ability to access and enjoy public accommodations is gamergate, the “highly public online mob assault” of game developers Zoë Quinn and Brianna Wu.”).

⁶¹ *Fortnite Video Game Maker Epic Games to Pay More Than Half a Billion Dollars over FTC Allegations of Privacy Violations and Unwanted Charges*, Fed. Trade Comm’n (Dec. 19, 2022) (press release), <https://www.ftc.gov/news-events/news/press-releases/2022/12/fortnite-video-game-maker-epic-games-pay-more-half-billion-dollars-over-ftc-allegations>; See *Fortnite Refunds*, FED. TRADE COMM’N (December 2022), <https://www.ftc.gov/fortnite>; Anousha Sakoui, *FTC hits Epic Games with record \$520 million in penalties over Fortnite privacy breaches*, L.A. TIMES (Dec. 19, 2022) (“The North Carolina-based company’s popular game duped millions of players into making unintentional purchases, the FTC said in a statement Monday. As a result, Epic has agreed to pay \$275 million for violating the Children’s Online Privacy Protection Act — the largest penalty ever obtained for breaching an FTC rule.”).

at the forefront of consumer protection and provide the best experience for our players.”⁶² The FTC had a very different view of the situation.

“As our complaints note, Epic used privacy-invasive default settings and deceptive interfaces that tricked Fortnite users, including teenagers and children,” said FTC Chair Lina M. Khan. “Protecting the public, and especially children, from online privacy invasions and dark patterns is a top priority for the Commission, and these enforcement actions make clear to businesses that the FTC is cracking down on these unlawful practices.”⁶³

Fortunately, Roblox, among the most popular of early metaverse experiences, does not seem to share these attributes with other gaming experiences.⁶⁴ “Roblox can help [a user] de-stress, connect with friends, and grow your creativity and problem-solving skills in a safe online environment.”⁶⁵ Roblox features much stronger social controls and a much more collaborative culture than many of the gaming environments. Still, competitive gaming is so well established in the online world that Roblox often defines itself by contrasting its user experience with that of the other online options. “As with any video game with these features, there are some risks, but overall, Roblox can be a safe gaming platform for older children according to experts—especially when parents take some precautions.”⁶⁶

Similarly, there is a wide range of social media experiences, from highly supportive to very toxic. Sites such as Twitter and Facebook are roundly criticized for engendering a global toxic culture.⁶⁷ Jonathan Haidt explains the phenomenon: “Social scientists have identified at least three major forces that collectively bind together successful democracies: social capital (extensive social networks with high levels of trust), strong institutions, and shared stories. Social media has weakened all three.”⁶⁸ Haidt focuses on the use of like buttons, reposting, and the transition from a shared online communal experience to one in which “social media had become a new game.”⁶⁹

⁶² *Epic FTC Settlement and moving beyond long-standing industry practices*, EPIC GAMES (Dec. 19, 2022), <https://www.epicgames.com/site/en-US/news/epic-ftc-settlement-and-moving-beyond-long-standing-industry-practices>.

⁶³ *FTC Fortnite Press Release*, *supra* note __.

⁶⁴ Cf. Maressa Brown. *Is Roblox Safe for Kids? Here's What the Experts Have to Say*, PARENTS (Oct. 6, 2022), <https://www.parents.com/kids/safety/internet/is-roblox-safe-for-kids/>.

⁶⁵ *How Roblox Affects Our Brain & Mental Health (14 Things To Know)*, GAMESVER (June 24, 2022), <https://www.gamesver.com/how-roblox-affects-our-brain-mental-health/> (but there are risks as well. “However, Roblox can also lead to problems with impulse control and addiction, leading to issues such as depression and anxiety.”).

⁶⁶ Brown, *supra* note __.

⁶⁷ See, e.g., Jonathan Haidt, *Why the Past 10 Years of American Life Have Been Uniquely Stupid*, THE ATLANTIC (April 11, 2022), <https://www.theatlantic.com/magazine/archive/2022/05/social-media-democracy-trust-babel/629369/>; Gideon Lewis-Krausm, NEW YORKER (June 3, 2022), <https://www.newyorker.com/culture/annals-of-inquiry/we-know-less-about-social-media-than-we-think>; Dani Deahl, *Amnesty International says Twitter's toxic culture is failing women*, VERGE (Mar 21, 2018), <https://www.theverge.com/2018/3/21/17146518/twitter-amnesty-international-toxic-culture-failing-women> (“Twitter has said it ‘cannot delete hatred and prejudice from society.’”); Austin Carr and Harry McCracken, “*Did We Create This Monster?*” *How Twitter Turned Toxic*, FAST COMPANY (Apr. 4, 2018), <https://www.fastcompany.com/40547818/did-we-create-this-monster-how-twitter-turned-toxic>.

⁶⁸ Haidt, *supra* note __.

⁶⁹ *Id.*

If you were skillful or lucky, you might create a post that would “go viral” and make you “internet famous” for a few days. If you blundered, you could find yourself buried in hateful comments. Your posts rode to fame or ignominy based on the clicks of thousands of strangers, and you in turn contributed thousands of clicks to the game.⁷⁰

YouTube videos, Twitch streamers, and other short-form media producers entered this marketplace transforming it into the world of nominally regulated online influencers.⁷¹ “[I]nfluencers draw on classic communicator attributes, such as attractiveness, prestige, and expertise, and these affect respondents’ desire to mimic what they see influencers do.”⁷² An extreme example of the power wielded by online influencers was highlighted with the indictment of eight social media influencers who used their Twitter and Discord accounts and an accompanying podcast to promote pump-and-dump stock manipulation.⁷³ The allegations identify that the defendants defrauded the public from over \$114 million through the promotion of so-called meme stocks.

If the metaverse becomes the home to slick influencer sales parties and a competition to win in online games and the internet-famous culture, then it will likely take on the same toxic sheen that pervades much of social media. There is also reason to hope, however, that the cancerous metastasization of bullying and trolling behavior in some of the current social media and online gaming can be anticipated and minimized in the shift to the metaverse.

Haidt notes that the transition of the internet was triggered by the intentional changes to the Facebook mechanisms.⁷⁴ The FTC Endorsement Guide anticipated the potential for manipulative and deceptive practices using online video and chat functions to lure and deceive the public.⁷⁵ Knowing these drivers create unhealthy environments, publishers organizing new metaverse platforms have the opportunity to encode social actions for healthier outcomes.

Already, there is also a multitude of online communities and organizations that use technology as tool for their “real world” shared experiences. These range from Zoom meetings and online classes to Slack channels and online religious communities. For groups that come together with a common purpose rather than the competition fostered by likes and reposts, the metaverse may provide a powerful communications and engagement platform.

Metaverse success stories already exist. For example, in 2016, the Virtual Reality Church began connecting people of faith through an entirely online experience.⁷⁶ D.J. Soto, the pastor and

⁷⁰ *Id.*

⁷¹ See Fed. Trade Comm’n, Guides Concerning the Use of Endorsements and Testimonials in Advertising Federal Acquisition Regulation, 17 Code Fed. Reg. 255 (2009) (hereinafter “FTC Endorsement Guide”).

⁷² Samra Karamustafic, *et al.*, *Social Media Influencers: Who They Are and How They Influence*, CLEVELAND STATE UNIVERSITY STUDENT SCHOLARSHIP (2020), https://engagedscholarship.csuohio.edu/stu_pub/1

⁷³ See SEC v. Constantin, complaint, S. Dist. Tx (Dec. 13, 2022). See also Jennifer Calfas, DOJ, *SEC Charge Eight Social-Media Influencers for Alleged Securities Fraud*, W.S.J. (Dec. 14, 2022), <https://www.wsj.com/articles/sec-charges-eight-influencers-in-100-million-securities-fraud-11671031747>.

⁷⁴ See Haidt, *supra* note __.

⁷⁵ See FTC Endorsement Guide, *supra* note __ at Fed. Reg. 53125 (Oct. 15, 2009).

⁷⁶ Chace Beech, *Virtual Reality Church Brings Worship to New Dimensions*, SPECTRUM NEWS 1 (Mar. 15, 2021), <https://spectrumnews1.com/ca/la-west/technology/2021/03/14/virtual-reality-church-brings-worship-to-new-dimensions> (“VR Church is designed, built, and run entirely online. It was founded in 2016 by D.J. Soto, an

church leader, explained that “the spiritual connection people experience in person in church, is equally accessible in virtual reality. ‘We believe God is everywhere, he’s in physical dimensions, spiritual dimensions, and virtual reality.’”⁷⁷

3. Developing a Distinct Educational Metaverse

In discussions of the general development of the metaverse, there is an expectation that it will be a variation of the online gaming world, sharing many of the key attributes for such worlds. Following this model, the assumption goes, any metaverse must have these essential characteristics: “persistence; synchronous and live interactions; the capacity for as many concurrent users as the users demand; a stable, functioning economy; the incorporation of both digital and physical worlds as well as operating on both open and closed platforms; largely interoperable; and be “populated by ‘content’ and ‘experiences’ created and operated by an incredibly wide range of contributors.””⁷⁸

Although these characteristics are the attributes of a well-functioning open gaming world and describe the internet more generally, these are not the attributes of a successful high school or college environment. So instead of translating gaming into education, the successful educational metaverse needs to begin with the fundamentals of an educational experience. An analogy can be found in the development of charter schools, nonprofit public schools operated using governmental funding but operated by independent governing boards often comprised of parents and teachers.⁷⁹ This may be more than an analogy. Charter schools may provide an excellent way to launch metaverse schools when they first emerge as viable. Forty-five states have legislation authorizing charter schools. The goals identified under the Colorado enabling legislation is illustrative:

- (a) To improve pupil learning by creating schools with high, rigorous standards for pupil performance;
- (b) To increase learning opportunities for all pupils, with special emphasis on expanded learning experiences for pupils who are identified as academically low-achieving;
- (c) To encourage diverse approaches to learning and education, and the use of different, innovative, research-based, or proven teaching methods;
- (d) To promote the development of longitudinal analysis of student progress, in addition to participation in the Colorado student assessment program, to measure pupil learning and achievement;

ordained Bishop. He was experimenting with virtual reality and realized he could marry this new technology with his religious work.”).

⁷⁷ *Id.* (quoting Bishop Soto).

⁷⁸ Matthew Ball, *The Metaverse: What it is, Where to Find it, and Who Will Build it*, MATTHEWBALL.VC (Jan. 13, 2020), <https://www.matthewball.vc/all/themetaverse>; see Ben Thompson, *Microsoft and the Metaverse*, STRATECHERY (Nov. 9, 2021), <https://stratechery.com/2021/microsoft-and-the-metaverse/> (quoting Ball and noting that these attributes describe the internet as well).

⁷⁹ See *What is a Charter School?*, NATIONAL CHARTER SCHOOL RESOURCE CENTER, <https://charterschoolcenter.ed.gov/what-charter-school> (last visited Dec. 15, 2022).

- (e) To create new employment options and professional opportunities for teachers and principals, including the opportunity to be responsible for the achievement results of students at the school site;
- (f) To provide parents and pupils with expanded choices in the types of education opportunities that are available within the public school system;
- (g) To encourage parental and community involvement with public schools;
- (g.5) To address the formation of research-based charter schools that use programs that are proven to be effective;
- (h) To hold charter schools accountable for meeting state content standards, as measured in part by the Colorado student assessment program and by longitudinal analysis of student progress, through state accreditation, and by adequate yearly progress as defined by federal law;
- (i) To provide an avenue for citizens to participate in the educational process and environment; and
- (j) To provide citizens with multiple avenues by which they can obtain authorization for a charter school.⁸⁰

The minimum standards for improving student outcomes should specify that the educational metaverse has rigorous authentication requirements for all pupils, faculty and staff; curricular content that meets each jurisdiction's standards; and assessments that meet state and federal obligations; as well as a governance structure that meets the statutory requirements and provides teacher training and professional development.⁸¹ Meeting these requirements simply allows the charter school to meet its statutory obligations. Students and their families expect much more.

Education experts and advocates say a range of qualities should be taken into consideration when evaluating schools, such as diversity of students and staff; experienced administrators and teachers; moderate class sizes; enrichment activities; frequent and effective communication; a strong support system for students; access to advanced academic courses; a sense of community identity; high rates of attendance; and facilities and equipment that serve the school's needs.⁸²

Rather than thinking about interoperability and scalability, metaverse schools need to focus on educational fundamentals to improve the student experiences and outcomes for differently situated students, including high-achieving students, students who are performing below grade level, and students with special needs.⁸³

[A]cross all public schools (as opposed to a handful of elite or charter schools) in a large district, all students benefit from attending more effective schools with particularly large benefits for disadvantaged students. ... [S]tudents with varying

⁸⁰ THE COLORADO CHARTER SCHOOL HANDBOOK: A GUIDE FOR STARTING AND OPERATING A CHARTER SCHOOL 2-3, COLORADO DEPT. OF ED. <http://resources.csi.state.co.us/wp-content/uploads/2020/03/CDE-Charter-School-handbook.pdf> (last visited Dec. 16, 2022).

⁸¹ *See id.* at 13-18.

⁸² Dina Weinstein, *What Makes a Great High School?*, RICHMOND MAG. (Oct. 28, 2019), <https://richmondmagazine.com/news/education/what-makes-a-great-high-school/>.

⁸³ *See C. Kirabo Jackson, et al., Who Benefits From Attending Effective High Schools?*, NAT. BUREAU ECON. RES. WORKING PAPER 28194 (Dec. 2020; Rev. Aug. 2022), <http://www.nber.org/papers/w28194>.

levels of educational advantage benefit from schools that raise test scores versus socio-emotional skills and behaviors. ... [But] test-score measures of school quality may understate the benefits of effective schools – particularly for disadvantaged students.⁸⁴

Each K-12 or P-20 educational metaverse should be built with its own antecedents that come from strong educational values, collaborative environments, and healthy respect for each individual learner withing a strong diversity, inclusion, and equity framework. The educational metaverse must also meet all the legal requirements for academic environments. This requires that the state and federal requirements regarding participation are incorporated into the metaverse and that the obligations to make educational opportunities available to all students are also fully met.

As the metaverse resources develop and begin to be introduced into education, there are many ways to integrate metaverse experiences, most of which do not require the creation of a private school or charter school. For example, at its simplest, a teacher might require that students log into a virtual world to complete a homework assignment. Such an online exercise might not even require that students from the class are in the same environment at the same time.

Moving to higher levels of engagement, a teacher might make the metaverse part of the regularly scheduled school week, treating forays into the metaverse like activities in the science lab or music room. Used in this way, the activity may or may not be part of the student’s evaluation for the term. Unlike the first example, however, a use such as this suggests that access occurs while the student is in school, meaning that it is happening during the school day, and the student is presumptively logged in from the school’s facility.

In another modality, students might be in their classrooms all day but using the metaverse for all classroom instruction. The metaverse replaces the blackboard and projector with its 3D immersive environment, but students still log off to go to lunch, to gym, to study hall, and to the music rooms and science labs.

If the metaverse is expected to replace those specialized locations such as the science lab and music room—or potentially even the gym—then the need for students to be on campus seems to disappear. In this model, students are issued their VR headsets and accompanying computers to be used at home. On the other hand, since school food programs are actually central to many public benefit programs, cities and states may prefer that schools did not disappear entirely. Instead, educational campuses under this model would become something of a “We Work” alternative in which multiple locations were operated by the school district with study rooms where virtual reality equipment was provided.

The students in these rooms would not necessarily be segregated by grade or subject matter. Instead, each student merely walks into the nearest community center/library/school, steps into an open VR suite, and logs into the school in which they are enrolled. Admittedly, disintermediating the middle and high school campus would interfere with after-school activities such as sports and arts. It might also have significant, detrimental effects on student socialization. But these design decisions also do not need to be all or nothing. A school district might provide an unbundled educational environment for those students who would prefer it or because of the students’ academic acceleration or special needs might be better suited to the services that could be offered through such systems.

⁸⁴ *Id.*

Still another variation might split the day (or week or month) into components. Students attend traditional classrooms in part 1 and then move into the metaverse for part 2 of the grading period. The metaverse classes might then involve students from not just the school district, but potentially anywhere on the globe (subject to time zone restrictions). At some point in the future, every language that exists could be taught by native speakers to interested students anywhere in the world. Elective subjects too narrow or too expensive to offer for a particular school district would become available because the students could log into the national offering of the course.

Each of these metaverse educational modalities comes with significant costs and with various trade-offs. Nonetheless, since the potential exists for the students to learn in each of these ways, schools must operate in a manner that meets all regulatory requirements as applied to each approach for exploiting the metaverse. The variations of modalities apply equally to primary, secondary, and postsecondary education. For purposes of this analysis, however, the article will focus on the primary and secondary education since the regulatory obligations are likely more stringent in these environments.

4. FERPA and COPPA Considerations when Traveling to the Metaverse

Privacy has been a pervasive challenge in the online environment,⁸⁵ but for educational organizations, there are well-established statutory requirements under the Family Educational Rights and Privacy Act of 1974 (FERPA)⁸⁶ and the Children's Online Privacy Protection Act (COPPA).⁸⁷ In addition, since 1978, Congress has required parental consent for select student surveys under the Protection of Pupil Rights Amendment (PPRA).⁸⁸ These laws and accompanying regulations apply with equal vigor to online education.⁸⁹

FERPA was enacted in the wake of the civil rights movement, protests over military draft requirements, and the early expansion of computerized document retention. The National Council of Citizens in Education had documented the misuse of student records that made FERPA and its PPR Amendment a national priority:

- carte blanche access to school records by school personnel, law enforcement agencies, welfare and health department workers, and Selective Service Board representatives;

⁸⁵ See, e.g., Benjamin L.W. Sobel, *A New Common Law of Web Scraping*, 25 LEWIS & CLARK L. REV. 147 (2021); Elysa M. Dishman, *Settling Data Protection Law: Multistate Actions and National Policymaking*, 72 ALA. L. REV. 839 (2021); Meg Strickler, *Recent Developments in Privacy Law*, 76 BUS. LAW. 269 (2021); Jon M. Garon, *Dysregulating the Media: Digital Redlining, Privacy Erosion, and the Unintentional Deregulation of American Media*, 73 ME. L. REV. 45 (2021); Dina Srinivasan, *The Antitrust Case Against Facebook: A Monopolist's Journey Towards Pervasive Surveillance in Spite of Consumers' Preference for Privacy*, 16 BERKELEY BUS. L.J. 39 (2019); Karl Manheim & Lyric Kaplan, *Artificial Intelligence: Risks to Privacy and Democracy*, 21 YALE J. L. & TECH. 106 (2019); Neil Richards & Woodrow Hartzog, *The Pathologies of Digital Consent*, 96 WASH. U. L. REV. 1461 (2019).

⁸⁶ 20 U.S.C. § 1232g (1974).

⁸⁷ Children's Online Privacy Protection Rule, 64 Fed. Reg. 59,888-01, 59,888 (Nov. 3, 1999) (to be codified at 16 Code Fed. Reg. pt. 312).

⁸⁸ Protection of Pupil Rights Amendment (PPRA) of 1978, 20 U.S. Code § 1232h (2022)

⁸⁹ See generally, Susan G. Archambault, *Student Privacy in the Digital Age*, 2021 B.Y.U. EDUC. & L.J. 1 (2021); Diana S. Skowronski, *COPPA and Educational Technologies: The Need for Additional Online Privacy Protections for Students*, 38 Ga. St. U. L. Rev. 1219 (2022); Amy Rhoades, *Big Tech Makes Big Data Out of Your Child: The FERPA Loophole Edtech Exploits to Monetize Student Data*, 9 AM. U. BUS. L. REV. 445 (2020); Alexis M. Peddy, *Dangerous Classroom "App"-Tititude: Protecting Student Privacy from Third-Party Educational Service Providers*, 2017 B.Y.U. EDUC. & L.J. 125 (2017).

- lack or denial of the right of parents and students to inspect school records, to control what goes into them, and to challenge their contents;
- failure to obtain permission from parents before collecting information on students and their families (for example, before submitting students to psychiatric or personality tests);
- serious abuses in the preparation of student records that follow students throughout their educational careers; and
- failure to inform students and parents when, to whom, and why others are given access to records.⁹⁰

FERPA incorporated student and family privacy into the General Education Act, extending privacy protection to all schools that receive funds from the U.S. Department of Education. Almost all U.S. schools fall into this category, including all public schools and universities at all grade levels, as well as most private institutions because they receive grants, student loan eligibility, or other support.⁹¹ Through FERPA and the additional privacy protections under Individuals with Disabilities Education Act (IDEA),⁹² student records may not be disclosed without the consent of the parent or adult student except in specified situations.⁹³ In addition, state educational licensing requirements may further extend FERPA and IDEA privacy rules to private institutions that do not use federal support.⁹⁴

Under FERPA, educational institutions are prohibited from disclosing "personally identifiable information in education records" without the written consent of the student, or, if the student is a minor, the student's parents.⁹⁵ Although schools can incur penalties or even lose their federal financial support as a result of FERPA violations, there is no private right of action under FERPA.

FERPA is not an absolute bar to information sharing. First, "directory information" can be published unless the student or guardian objects to its public disclosure.

(a) Directory information includes, but is not limited to, the student's name; address; telephone listing; electronic mail address; photograph; date and place of birth; major field of study; grade level; enrollment status (*e.g.*, undergraduate or graduate, full-time or part-time); dates of attendance; participation in officially recognized activities and sports; weight and height of members of athletic teams; degrees, honors, and awards received; and the most recent educational agency or institution attended.⁹⁶

In addition to the directory information, there are also a number of other situations in which student records can be shared. FERPA allows schools to disclose records without consent, to the following parties or under the following conditions:

⁹⁰ *Personal Privacy in an Information Society. The Family Educational Rights and Privacy Act—The Origins of FERPA*, U.S. DEPT. HEALTH & HUMAN SCVS., 07/12/1997, <https://aspe.hhs.gov/report/personal-privacy-information-society/family-educational-rights-and-privacy-actthe-origins-ferpa>.

⁹¹ 34 Code Fed. Reg. § 99.1(a)(1).

⁹² 20 U.S.C. §1400 (2022) (extending privacy obligations to state regulations).

⁹³ 34 Code Fed. Reg. § 99.30 (FERPA); 34 Code Fed. Reg. 300.9 (IDEA).

⁹⁴ *See* 34 Code Fed. Reg. § 99.1(a)(1).

⁹⁵ 34 Code Fed. Reg. § 99.3.

⁹⁶ *Id.* ("Directory information").

- School officials with legitimate educational interest;
- Other schools to which a student is transferring;
- Specified officials for audit or evaluation purposes;
- Appropriate parties in connection with financial aid to a student;
- Organizations conducting certain studies for or on behalf of the school;
- Accrediting organizations;
- To comply with a judicial order or lawfully issued subpoena;
- Appropriate officials in cases of health and safety emergencies; and
- State and local authorities, within a juvenile justice system, pursuant to specific State law.⁹⁷

As illustrated in this list, FERPA does not interfere with the ability of school officials to share student information in the case of a health or safety emergency, including instances of school shootings or other emergencies. Specifically, a school “may disclose personally identifiable information from an education record to appropriate parties, including parents of an eligible student, in connection with an emergency if knowledge of the information is necessary to protect the health or safety of the student or other individuals.”⁹⁸ In this context, it is important to highlight that there is no personal claim under FERPA, so if a school provides too much information in the context of a potential health or safety event, only the Department of Education has the ability to sanction that institution and such a sanction appears never to have been issued. Fear of FERPA violations, therefore, should not delay responses to health and safety events.

Particularly in the context of online surveillance, another area of concern is a school’s authority to share educational records to campus safety officers or law enforcement.⁹⁹ Under the FERPA regulations, the information can be provided to police and safety officers provided there is a judicial order or lawfully issued subpoena.¹⁰⁰ The regulations provide that the school is required to make a reasonable effort to notify the student or parent about the order or subpoena prior to its compliance, so that the student or parent may seek protective action “[a] Federal grand jury subpoena and the court has ordered that the existence or the contents of the subpoena or the information furnished in response to the subpoena not be disclosed.”¹⁰¹

In the online context, FERPA is not the only legal protection for student information. For those pupils under the age of 13, COPPA provides additional requirements regarding the disclosure of a child’s protected personal information.

The primary goal of COPPA is to place parents in control over what information is collected from their young children online. The Rule was designed to protect children under age 13, while accounting for the dynamic nature of the Internet. The

⁹⁷ Family Educational Rights and Privacy Act (FERPA), <https://www2.ed.gov/policy/gen/guid/fpco/ferpa/index.html>.

⁹⁸ 34 Code Fed. Reg. § 99.36 (2022).

⁹⁹ 34 Code Fed. Reg. § 99.31 (2022).

¹⁰⁰ *Id.*

¹⁰¹ 34 Code Fed. Reg. § 99.31(a)(9)(ii)(A).

Rule applies to operators of commercial websites and online services (including mobile apps and IoT devices, such as smart toys) directed to children under 13 that collect, use, or disclose personal information from children, or on whose behalf such information is collected or maintained (such as when personal information is collected by an ad network to serve targeted advertising). The Rule also applies to operators of general audience websites or online services with actual knowledge that they are collecting, using, or disclosing personal information from children under 13, and to websites or online services that have actual knowledge that they are collecting personal information directly from users of another website or online service directed to children.¹⁰²

COPPA only impacts programs involving minors under the age of thirteen, so it has little impact on high school and collegiate programs. It also is limited to commercial website operators, so it does not, but its own terms, regulate public elementary and middle schools nor nonprofit private institutions. Nonetheless, if a middle school or one of its teachers assigns an online exercise, then COPPA may be implicated.

The Federal Trade Commission (FTC) which is responsible for enforcing COPPA allows for school districts to contract with websites and services subject to the COPPA rule and provide the equivalent of parental consent.

Many school districts contract with third-party website operators to offer online programs solely for the benefit of their students and for the school system – for example, homework help lines, individualized education modules, online research and organizational tools, or web-based testing services. In these cases, the schools may act as the parent’s agent and can consent under COPPA to the collection of kids’ information on the parent’s behalf. However, the school’s ability to consent for the parent is limited to the educational context – where an operator collects personal information from students for the use and benefit of the school, and for no other commercial purpose.¹⁰³

The distinction made by the FTC for school district consent is that the website operator regulated by COPPA is not collecting the individual student information for commercial purposes. If, instead, the website operator markets products or services to the pupil, then only parental consent is sufficient to use the service.¹⁰⁴

Teachers are often the ones who select and choose to assign an online resource. The practice is not prohibited by the FTC. However, the FTC does not recommend it. “As a best practice, we recommend that schools or school districts decide whether a particular site’s or service’s information practices are appropriate, rather than delegating that decision to the teacher. Many schools have a process for assessing sites’ and services’ practices so that this task does not fall on individual teachers’ shoulders.”¹⁰⁵

¹⁰² *A Guide for Business and Parents and Small Entity Compliance Guide*, FTC, <https://www.ftc.gov/business-guidance/resources/complying-coppa-frequently-asked-questions> (last visited Dec. 18, 2022).

¹⁰³ *Id.* at N. 1.

¹⁰⁴ *Id.* at N. 2 (“Operators may not use the personal information collected from children based on a school’s consent for another commercial purpose because the scope of the school’s authority to act on behalf of the parent is limited to the school context.”).

¹⁰⁵ *Id.* at N. 3.

This rather gentle encouragement for the school or district to decide whether or not to contract with the online provider masks the affirmative obligation of the school to assure the operated has provided “the school with the same type of direct notice regarding its practices as to the collection, use, or disclosure of personal information from children as it would otherwise provide to the parent.”¹⁰⁶ Individual teachers are not typically in a position to make this undertaking nor do they typically have the authority to contract with the online vendors on behalf of the school district, which means they have not contractually bound the vendors to comply with either the limitations on commercial activity nor any FERPA requirements. As a result, individual teacher forays into the metaverse for students under thirteen should be limited and to comply with the obligations of FERPA and COPPA, the vendors should be selected at the school or district level.

The settlement between the FTC and Fortnite highlight the importance of school districts or individual teachers being mindful before they assign activities in online environments for pupils under thirteen.¹⁰⁷

The Fortnite settlement also suggests two contractual obligations that school districts should require as a prerequisite to assigning students online obligations regarding default settings and data retention. First, the school district should insist that all communications and purchasing options are provided to the students on an opt-in basis. For children under the age of 13, they can only opt in to those services when the company has received the consent of the parents.¹⁰⁸ Secondly, the online service provider must agree to delete the data of the students following the end of the contractual service so that student educational records are removed from the vendor’s database and not inadvertently used for unauthorized purposes or put at risk of future cybersecurity breaches.

5. Online Equity: IDEA Rehabilitation Act, ADA, and IEP Obligations

For some students, the potential to throw on a VR headset and travel anywhere in virtual reality is quite liberating, but for others, the reliance of visual information and VR-based movement may

¹⁰⁶ *Id.* at N. 1.

In addition, the operator, upon request from the school, must provide the school a description of the types of personal information collected; an opportunity to review the child’s personal information and the right to have the information deleted; and the opportunity to prevent further use or online collection of a child’s personal information. As long as the operator limits use of the child’s information to the educational context authorized by the school, the operator can presume that the school’s authorization is based on the school’s having obtained the parent’s consent. . . . Schools also should ensure operators delete children’s personal information once the information is no longer needed for its educational purpose.

¹⁰⁷ See FTC Fortnite Press Release, *supra* note ____.

¹⁰⁸ *Id.*

In addition to paying the record civil penalty, which goes to the U.S. Treasury, for violating the COPPA Rule, the proposed federal court order will prohibit Epic from enabling voice and text communications for children and teens unless parents (of users under 13) or teenage users (or their parents) provide their affirmative consent through a privacy setting. Epic must delete personal information previously collected from Fortnite users in violation of the COPPA Rule’s parental notice and consent requirements unless the company obtains parental consent to retain such data or the user identifies as 13 or older through a neutral age gate. In addition, Epic must establish a comprehensive privacy program that addresses the problems identified in the FTC’s complaint, and obtain regular, independent audits.

create its own barriers to access.¹⁰⁹ “VR’s reliance on physical movements can be a deterrent for many players with motor disabilities. Beyond that, the headsets and screen resolution can lead to numerous barriers for low-vision users, so much so that games without appropriate features or accessible design are completely unplayable.”¹¹⁰

Examples of design barriers include a tendency to emphasize game-like movements that promote dexterity and speed. “[A]ccessibility advocate Daniel “AccessibleDan” Gilbert ... failed to make it through the Anne Frank House VR tour due to necessary motion controls. ‘At one point it requires the user to physically interact with the bookcase that leads to the tour, and I couldn’t progress. It really upset me that even educational content was inaccessible,’ he says.” Design choices such as this stem from the online game origins of the metaverse rather than the inclusiveness approach essential to the modern educational environment.

In every instance where an instructor or a school district chooses to employ the metaverse as part of the educational program, the application must meet the legal obligations under the Americans with Disabilities Act (ADA), the Rehabilitation Act of 1973, IDEA, and other state and federal requirements.¹¹¹ Such obligations generally begin with IDEA because it both requires states to provide free, public education (FAPE) to eligible children with disabilities and helps fund the state costs for the special education expenses.¹¹²

A FAPE, as the Act defines it, includes both “special education” and “related services.” “Special education” is “specially designed instruction ... to meet the unique needs of a child with a disability”; “related services” are the support services “required to assist a child ... to benefit from” that instruction. A State covered by the IDEA must provide a disabled child with such special education and related services “in conformity with the [child’s] individualized education program,” or IEP.¹¹³

As the Supreme Court recently explained, under IDEA an IEP must provide “an educational program reasonably calculated to enable a child to make progress appropriate in light of the child’s circumstances.”¹¹⁴ In doing so, IDEA obligates schools to provide accommodations¹¹⁵ or

¹⁰⁹ See Kaitlin Ugolik Phillips, *Virtual Reality Has an Accessibility Problem*, SCIENTIFIC AMERICAN (Jan. 29, 2020), <https://blogs.scientificamerican.com/voices/virtual-reality-has-an-accessibility-problem/> (“It’s been touted as an “empathy machine” that lets users see what it’s like to have a disability—but people with disabilities often can’t use it.”).

¹¹⁰ Grant Stoner, *VR Is Here to Stay. It’s Time to Make It Accessible*, WIRED (Mar. 1, 2022), <https://www.wired.com/story/virtual-reality-accessibility-disabilities/>.

¹¹¹ See *Endrew F. ex rel. Joseph F. v. Douglas County Sch. Dist.*, RE-1, 580 U.S. 386, 137 S. Ct. 988 (2017); *Board of Ed. of Hendrick Hudson Central School Dist., Westchester Cty. v. Rowley*, 458 U.S. 176 (1982) (the Individuals with Disabilities Education Act establishes a substantive right to a “free appropriate public education” for certain children with disabilities.).

¹¹² 34 Code Fed. Reg. §300.101 (2022) (“(a) General. A free appropriate public education must be available to all children residing in the State between the ages of 3 and 21, inclusive, including children with disabilities who have been suspended or expelled from school, as provided for in §300.530(d).”).

¹¹³ *Douglas County Sch. Dist. RE-1*, 137 S. Ct. at 993 *quoting* IDEA, 20 U.S.C. § 1409.

¹¹⁴ *Id.* at 1001.

¹¹⁵ See *School Accommodations and Modifications*, FAPE-27, WRIGHTSLAW, <https://www.wrightslaw.com/info/fape.accoms.mods.pdf> (last visited Dec. 18, 2022) (“An accommodation as used in this document allows a student to complete the same assignment or test as other students, but with a change in the

modifications¹¹⁶ so that each student in the primary and secondary educational program can succeed to get a free public education. It does not, however, require that the experience is necessarily the same as students without the accommodations or modifications. In the context of the metaverse, this may mean that for some students, the metaverse is actually the modification they receive because it provides an equivalent educational experience to that received by other students in an in-person setting.

On the other hand, if the metaverse is the standardized method of teaching, then accommodations and modifications may be needed to make the learning experience open to those students who cannot participate in the virtual learning experience. This may require substituting alternatives using written or audio text, “clay models, posters, panoramas, collections”¹¹⁷ or other options. Similar adjustments will be required to make participation in the metaverse possible to the extent practical, to conduct formative and summative assessments in or using the metaverse, then the IEP developed between the school and the parent might provide alternatives that allow the student to make successful progress without resort to use of the metaverse at all.

“Well-designed IEPs are important in building skills that lead to success in the future of students with disabilities. Students who receive interventions to promote self-determination achieve education-related goals at a higher rate and have more positive community participation, employment, and quality of life after leaving school.”¹¹⁸ Moving forward, well designed IEPs need to take technological requirements into account in their design.

The federal government anticipated this need with the Assistive Technology Act of 2004.¹¹⁹ Under the law, assistive technology is a very broadly defined term to mean any technology “that is used to increase, maintain, or improve functional capabilities of individuals with disabilities.”¹²⁰ These can range from wheelchairs to iPads, including general purpose tools and machines that can be modified for additional use by people with disabilities. “The metaverse spaces need to accommodate deaf, blind and visually impaired users by adopting a captioning system and accommodating screen readers. However, it is not clear how these features could be successfully developed in that world.”¹²¹

For some individuals, the use of VR headsets and virtualized environments may become assistive technology while for others, they will need assistive technology to keep up with the technology in the metaverse environment. Still, there are a great many tools that can be used within the metaverse experience.

timing, formatting, setting, scheduling, response and/or presentation. This accommodation does not alter in any significant way what the test or assignment measures.”).

¹¹⁶ *Id.* (“A modification as used in this document is an adjustment to an assignment or a test that changes the standard or what the test or assignment is supposed to measure.”).

¹¹⁷ *Id.*

¹¹⁸ Belinda Chen, *et al.*, *Reduction in school individualized education program (IEP) services during the COVID-19 pandemic*, FRONT REHABIL SCI. (Sep 26, 2022), <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9548582/>.

¹¹⁹ Pub. L. 108–364, Oct. 25, 2004, 118 Stat. 1707 codified 29 U.S.C. § 3001 et seq.

¹²⁰ *Id.* at §3002.

¹²¹ Alison Haynes and Haifa Alsaab, *Will the Metaverse Be Accessible?*, INSIDE EQUAL ACCESS (Oct. 2022), www.kent.edu/equalaccess/will-metaverse-be-accessible.

Readers, touch screens, signal lights, text-to-speech software, Braille keyboards navigation devices that are appropriate for the particular needs of individual all will open additional doors for metaverse usage. Moreover, it is not merely having technology available. The key is understanding how to adapt the technology to the special needs.

Virtual reality and augmented reality technology is already more than sufficient to bring disabled people into virtual worlds; the challenge is in fine-tuning that technology to best serve those with disabilities. “Right now, there are probably four or five head-mounted displays that automatically do eye-tracking,” said Jeremy Bailenson, founding director of Stanford’s Virtual Human Interaction Lab and co-founder of the VR company STRIVR. “But very few of them are using eye movements as an input; they’re mostly using it to measure where a person was looking and get a better sense of engagement or understanding.”¹²²

IDEA and the Assistive Technology Act are supplemented by a much broader but less often used statutory alternative under the Rehabilitation Act. Section 504 of the Rehabilitation Act also requires that students with a disability are entitled to a FAPE.¹²³ “Every student who is eligible for help under the IDEA is also covered under Section 504, which prohibits discrimination against people with disabilities by any agency that receives federal money.”¹²⁴ Still, a survey creating an initial comparison between IDEA and Section 504 found that the accommodations under IDEA were ten times more common than under Section 504.¹²⁵ “[A]bout 1.2 percent of public school students receive Section 504 services only, compared with 12 percent served under the IDEA.”¹²⁶

The prohibition is very broad: “No otherwise qualified individual with a disability in the United States... shall, solely by reason of her or his disability, be excluded from the participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance...”¹²⁷ Under the regulations, to be a qualifying disability, the impairment must substantially limit one or more major life activities.¹²⁸

Substantial impairment and the list of major life activities are broadly defined. The regulations provide a non-exhaustive list of examples of major life activities: caring for oneself, performing manual tasks, seeing, hearing, eating, sleeping, walking, standing, sitting, reaching, lifting, bending, speaking, breathing, learning, reading, concentrating, thinking, communicating, interacting with others, and working.¹²⁹ There are many others.

¹²² Alexander Lee, *As the virtual world takes shape, experts caution metaverse builders to prioritize accessibility*, DIGIDAY (Nov. 19, 2021), <https://digiday.com/marketing/as-the-virtual-world-takes-shape-experts-caution-metaverse-builders-to-prioritize-accessibility/>.

¹²³ Rehabilitation Act of 1973, 29 U.S.C. §794 (2022).

¹²⁴ Christina A. Samuels *Study Finds ‘Section 504’ Rules Source of Confusion for Schools*, ED. WEEK (Mar. 18, 2008), <https://www.edweek.org/teaching-learning/study-finds-section-504-rules-source-of-confusion-for-schools/2008/03>.

¹²⁵ *Id.*

¹²⁶ *Id.*

¹²⁷ Rehabilitation Act of 1973, 29 U.S.C. §794 (2022).

¹²⁸ 34 Code Fed. Reg. § 104.3(j)(2)(i) (2022).

¹²⁹ *Id.* See JON M. GARON, PARENTING FOR THE DIGITAL GENERATION 85-88 (2022).

The impact for compliance with the Rehabilitation Act for primary and secondary schools differs from that of higher education.

Public elementary and secondary recipients are required to provide a free appropriate public education to qualified students with disabilities. Such an education consists of regular or special education and related aids and services designed to meet the individual educational needs of students with disabilities as adequately as the needs of students without disabilities are met.

At the postsecondary level, the recipient is required to provide students with appropriate academic adjustments and auxiliary aids and services that are necessary to afford an individual with a disability an equal opportunity to participate in a school's program. Recipients are not required to make adjustments or provide aids or services that would result in a fundamental alteration of a recipient's program or impose an undue burden.¹³⁰

If an academic program relies on VR headsets to provide the instruction, then a college that could not provide the program without the VR headset would not be obligated to accommodate a student for whom the VR headset could not be utilized due to a medical condition. In the primary and secondary environment, the school would be required to provide accommodations to enable the student to participate. But even here, the ability to participate may result in a very different experience. The use of aids and alternatives might enable the student to receive an equivalent educational experience but it will likely be a very different experience from those who are immersed in the technology.

Finally, all metaverse operations are subject to the broadest of the accommodation laws, that of the Americans with Disabilities Act (ADA).¹³¹ The ADA requires that students be provided with accessible classrooms, websites, and other services. The ADA “dictates details in classroom design, teaching strategies, and the use of technological aids. ADA compliance also requires using communications tools, such as captioning and transcription services, to convey important information.”¹³²

When exploring ways to integrate the metaverse into the classroom or to move the classroom into the metaverse, publishers and educators must consider how best to make this an equitable learning environment.¹³³

As an educator, activities, lessons, and instructional techniques in the classroom cannot be geared towards simply reaching a broad group of children. Instead, ADA compliance in education requires you to pay close attention to the needs of students with disabilities. This includes:

- Ensuring all students have the opportunity to take part in and benefit from school programs and services;

¹³⁰ *Protecting Students with Disabilities, Frequently Asked Questions About Section 504 and the Education of Children with Disabilities*, DEP. OF ED. OFFICE OF CIVIL RIGHTS, <https://www2.ed.gov/about/offices/list/ocr/504faq.html> (last visited Dec. 17 2022).

¹³¹ Americans with Disabilities Act of 1990 (Pub. L. No. 101-336, 104 Stat. 327, codified 42 U.S.C. §§ 12112-12117).

¹³² Erin Myers, *ADA Compliance in the Classroom*, REV. (Mar. 13, 2020), <https://www.rev.com/blog/ada-compliance-in-the-classroom>.

¹³³ Lee, *supra* note ____.

- Providing students with disabilities the same types of opportunities and experiences other students enjoy;
- Making sure the quality of services and benefits provided is equal to those received by other students;
- Emphasizing classroom accessibility and providing the proper equipment to increase the student's comfort and chances for success.¹³⁴

One of the lessons that may have emerged from the reliance in online education caused by the 2020 COVID-19 pandemic was the importance of planning for adoption of technology when designing IEPs and educational plans.¹³⁵ Nor is online education a panacea for student motivation and engagement. "Teacher interviews ... indicated that prior to the pandemic, remote/distance learning was a disappointing experience for some teachers compared to in-person learning due to lack of school and technical support, low student effort, and technology issues."¹³⁶ Perhaps, however, there should not be too much read into the effectiveness of teaching during the pandemic since the existential threat caused by the pandemic may have been an overriding factor that went well beyond the particular learning environment.¹³⁷

Metaverse developers could be adopting accessibility standards, but those have had little real world impact. "In 1997, the World Wide Web Consortium (W3C) launched its Web Accessibility Initiative to ensure that the rapidly evolving web would not leave disabled users behind. The Web Content Accessibility Guidelines (WCAG), first published in 1999, were part of this initiative and have been updated regularly."¹³⁸

The guidelines have been developed following four key principles for web accessibility: perceivable, operable, understandable, and robust. Perceivable means that the content must be both visually and auditorily accessible.¹³⁹ Operable requires that websites work with various devices such as text readers, magnifier, or pointer devices that help people with disabilities. Understandability requires that the web should have both the information and the operation of the website readily understandable by the users. Finally, robust refers to the requirement that the website is compatible with a wide variety of assistive technologies and other user devices, and updated so that improvements in the assistive devices will be able to continue to take advantage of the websites. While these four principles are straightforward, the WCAG 2.1 standards have many detailed standards and technical requirements.¹⁴⁰

¹³⁴ Myers, *supra* note __.

¹³⁵ See Chen, *supra* note __.

¹³⁶ *Id.* See also Adil Bentahar and Ali Alalou, *IEP Reading Instruction During the COVID-19 Emergency Remote Teaching*, 34 *READING IN A FOREIGN LANGUAGE* 378 (Oct. 2022), <https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&ved=2ahUKEwiZ9fr3yoH8AhUSVTABHfKIDnoQFnoEChgQAQ&url=https%3A%2F%2Fscholarspace.manoa.hawaii.edu%2Fbitstreams%2F377ead9c-1b1b-4af5-afcc-624aa97cebf5%2Fdownload&usq=AOvVaw2kot16akpd6cc1HDggI94c>.

¹³⁷ See John Hall. Covid-19 Got You—And Your Productivity—Down? Here's How To Get Back Up, *Forbes* (Oct. 4, 2020), <https://www.forbes.com/sites/johnhall/2020/10/04/covid-19-got-you-and-your-productivity-down-heres-how-to-get-back-up/>; Bentahar and Alalou, *supra* note __.

¹³⁸ Accessibility and inclusivity in the metaverse, Cudos, <https://www.cudos.org/blog/accessibility-and-inclusivity-in-the-metaverse/> (last visited Dec. 18, 2022).

¹³⁹ WEB CONTENT ACCESSIBILITY GUIDELINES (WCAG) 2.1, W3C RECOMMENDATION, June 5, 2018, <https://www.w3.org/TR/WCAG21/>.

¹⁴⁰ *Id.*

The voluntary guidelines are within the scope of the mandatory manufacturing requirements of the Telecommunications Act.¹⁴¹

Section 255 of the Communications Act requires telecommunications products and services to be accessible to people with disabilities. This is required to the extent access is “readily achievable,” meaning easily accomplishable, without much difficulty or expense. If manufacturers cannot make their products accessible then they must design products to be compatible with adaptive equipment used by people with disabilities, where readily achievable. What is readily achievable will be different for each manufacturer based on the costs of making products accessible or compatible and their resources.¹⁴²

Although compliance with WCAG seems intermittent at best, for schools operating under the obligations of the ADA, IDEA, and Rehabilitation Act, as well as agencies require to comply with procurement obligations under Section 255 of the Telecommunications Act, there should be powerful motivation to comply with the WCAG requirements.

The University of Oregon has collected an excellent set of suggestions based closely on the WCAG 2.0 and 2.1 Standards.¹⁴³ Each instructor should use these guides as checklists when updating their LMS or adding content to their site.

Perceivable—Users must be able to perceive the information being presented. It can't be invisible to all of their senses.

- Add alt text to images and visuals
- Close caption videos and provide transcripts for audio
- Provide sufficient color contrast between text and backgrounds
- Make sure content doesn't rely on color alone

Operable—Users must be able to operate the interface and navigation. The interface cannot require interaction that a user cannot perform.

- Provide clear structure with properly marked headings
- Create descriptive links that make sense out of context
- Provide sufficient time for interaction and response
- Avoid content that can trigger seizures

Understandable—Users must be able to understand the information as well as the operation of the user interface. The content or operation cannot be beyond their understanding.

- Clarify expectations through clear directions and models
- Follow conventions to ensure a predictable and consistent experience
- Use plain language
- Indicate the language of your content¹⁴⁴

¹⁴¹ 47 U.S.C. §255 (2022).

¹⁴² Guidance on the Telecommunications Act Section 255 Guidelines, U.S. Access Board, https://www.access-board.gov/ict/guide/2555_guide.md.html, (last visited Dec. 18, 2022).

¹⁴³ Web Accessibility, University of Oregon, <https://communications.uoregon.edu/accessibility>.

¹⁴⁴ *Id.*

Taken together, the obligations and guidance should create a framework for an inclusive version of the metaverse, but this will require the development of an educational metaverse that likely looks far different than the online gaming extensions being developed by the commercial enterprises. Even more than a cultural shift, the requirements of true accessibility will require a fundamentally different design and structure than those seen in Fortnite or Meta Horizons.

6. Online Equity: The Digital Divide and a Culture of Belonging

That “[t]he future is already here. It’s just not evenly distributed yet” is a well-known observation about the emergence of new technologies and trends often attributed to science fiction author William Gibson.¹⁴⁵ Unfortunately this is not only a picture of the future, but also an excellent summary of the investment in education more generally. “In contrast to European and Asian nations that fund schools centrally and equally, the wealthiest 10 percent of U.S. school districts spend nearly 10 times more than the poorest 10 percent, and spending ratios of 3 to 1 are common within states.”¹⁴⁶

Statistical evidence demonstrates that investments in education for pupils from low-income families improves educational outcomes. “For children from low-income families, increasing per-pupil spending yields large improvements in educational attainment, wages, family income, and reductions in the annual incidence of adult poverty.”¹⁴⁷ The metaverse has the potential to provide an experience of small class sizes and more individualized attention that is often the key benefit of student spending on improved student outcomes.¹⁴⁸ “[I]mproved access to school resources can profoundly shape the life outcomes of economically disadvantaged children, and thereby significantly reduce the intergenerational transmission of poverty.”¹⁴⁹

The problem posed by inequities in technology have existed throughout the history of the United States. The Telecommunications Act of 1996¹⁵⁰ identified these concerns as at least part of

¹⁴⁵ Quote generally attributed to William Gibson. See Pagan Kennedy, *William Gibson’s Future Is Now*, N.Y. TIMES (Jan. 13, 2012), <https://www.nytimes.com/2012/01/15/books/review/distrust-that-particular-flavor-by-william-gibson-book-review.html> (“[T]his quote is often attributed to Gibson, though no one seems to be able to pin down when or if he actually said it. Still, it neatly sums up his own particular flavor.”); see also *The Future Has Arrived — It’s Just Not Evenly Distributed Yet*, QUOTE INVESTIGATOR (Jan. 24, 2012), <https://quoteinvestigator.com/2012/01/24/future-has-arrived/> (providing an outline of the evolution of the quote with attribution to Gibson and a nod to Marshall McLuhan and Alvin Toffler). See, Garon, *Metaverse*, *supra* note __ at __.

¹⁴⁶ Linda Darling-Hammond, *Unequal Opportunity: Race and Education*, BROOKINGS (Mar. 1, 1998), <https://www.brookings.edu/articles/unequal-opportunity-race-and-education/> (“Despite stark differences in funding, teacher quality, curriculum, and class sizes, the prevailing view is that if students do not achieve, it is their own fault.”).

¹⁴⁷ C. Kirabo Jackson, Rucker Johnson, & Claudia Persico, *The Effects of School Spending on Educational and Economic Outcomes: Evidence from School Finance Reforms*, 131 QUARTERLY J. ECON. 1, 34 (2015).

¹⁴⁸ Darling-Hammond, *supra* note __.

Over the past 30 years, a large body of research has shown that four factors consistently influence student achievement: all else equal, students perform better if they are educated in smaller schools where they are well known (300 to 500 students is optimal), have smaller class sizes (especially at the elementary level), receive a challenging curriculum, and have more highly qualified teachers. Minority students are much less likely than white children to have any of these resources

¹⁴⁹ Jackson, Johnson, & Persico, *supra* note __ at 34.

¹⁵⁰ Telecommunications Act of 1996, Pub. L. No. 104-104, 110 Stat. 56 (codified in scattered sections 47 U.S.C. (2022)).

its justification for overhauling the Communications Act of 1934.¹⁵¹ But the utopian dreams of the information superhighway offered few answers on how poor cities and neighborhoods were going to find onramps rather than overpasses.¹⁵²

As we identify the potential of network technology to benefit our society, we must be wary that it not become a tool of disenfranchisement. Many are concerned that a significant portion of America's inner city and rural communities will become the domain of "information and technology have-nots" due to the unequal access to telecommunications network technologies and the telephones, computers, and other customer equipment that may be attached to the networks.¹⁵³

In addition to the disparate investment in public education, there has been a similar failure to assure universal technological access. "Americans in these [inner city and rural] communities often are also those less likely to own or have access to the telephones and computers necessary to take advantage of basic or advanced network services and efficiencies."¹⁵⁴

Nowhere is this more apparent than when looking at the implications of the digital divide and the inequitable access to innovation.¹⁵⁵ Writing about the adoption of the internet more generally, Professor Danielle Citron explained the threat posed by the reliance on scares and expensive technologies.

The Internet also confers great opportunities on those with the physical and intellectual capital to aggregate with others who are similarly situated, but in so doing it furthers the disadvantage of those who do not share the same physical and intellectual capital. The "digital divide" resembles the enhanced isolation that pervasive telephone ownership imposes on those who cannot afford telephones and that structured, urban environments impose on the homeless.¹⁵⁶

"The idea of the "digital divide" refers to the growing gap between the underprivileged members of society, especially the poor, rural, elderly, and handicapped portion of the population

¹⁵¹ Communications Act of 1934, ch. 652, § 151, 48 Stat. 1064, 1064 (superseded)). Section 254, 47 U.S.C §254 provides for universal service:

(3) ACCESS IN RURAL AND HIGH COST AREAS.--Consumers in all regions of the Nation, including low-income consumers and those in rural, insular, and high cost areas, should have access to telecommunications and information services, including interexchange services and advanced telecommunications and information services, that are reasonably comparable to those services provided in urban areas and that are available at rates that are reasonably comparable to rates charged for similar services in urban areas.

(4) EQUITABLE AND NONDISCRIMINATORY CONTRIBUTIONS.—All providers of telecommunications services should make an equitable and nondiscriminatory contribution to the preservation and advancement of universal service.

¹⁵² Allen S. Hammond, IV, *The Telecommunications Act of 1996: Codifying the Digital Divide*, 50 FED. COMMUN. L.J. 179, 183 (1997) ("Already, consumer and civil rights groups allege that network providers are bypassing low-income and minority communities in the early stages of enhancing older networks or building new networks.").

¹⁵³ *Id.* at 182-183.

¹⁵⁴ *Id.* at 183.

¹⁵⁵ See Allen S. Hammond, IV, *The Telecommunications Act of 1996: Codifying the Digital Divide*, 50 FED. COMMUN. L.J. 179, 182-83 (1997).

¹⁵⁶ Danielle Keats Citron, *Cyber Civil Rights*, 89 B.U. L. REV. 61, 66 n. 28 (2009)

who do not have access to computers or the internet; and the wealthy, middle-class, and young Americans ... who have access.”¹⁵⁷ The digital divide incorporates concerns about wealth as well as concerns about disparate online treatment.¹⁵⁸ The disparate treatment is particularly prominent in the financing and support of public education.

Technology in general, and the metaverse in particular, will not be a panacea for these differences. But because VR headsets and powerful computer systems are expensive,¹⁵⁹ there is a significant risk that the benefits of any innovation will be provided to those school districts and universities that have the greatest resources rather than where they might have the strongest impact. “Unfortunately, according to a study conducted by the National Telecommunications and Information Administration (NTIA), ... the gap is widening along already strained economic and racial lines.”¹⁶⁰ In another NTIA study, the agency tracked household broadband for households with school-aged children. In 2019, slightly more than 26% of household did not have Internet at home.¹⁶¹ The provision of metaverse technologies as well as other internet services are likely to be used more effectively when students have access at both school and home. But as the NTIA data indicate, this means that for a significant part of the student population, these resources will be out of reach or severely limited in availability.

“Black and Hispanic adults remain less likely than whites to say they own a traditional computer or have high speed internet at home, according to a Pew Research Center survey conducted in early 2019.”¹⁶² “Having a single home computer might be sufficient in a home where that computer is not used by the parents for work and most homework is completed in notebooks, but when every member of the household needs to be online, owning a single computer will leave each family member frustrated.”¹⁶³

The educational metaverse has an obligation to provide meaningful equal access, which is itself part of the broader societal need for public education to produce educated and engaged citizens.¹⁶⁴ Although there is no federal constitutional right to equal school funding,¹⁶⁵ there are numerous

¹⁵⁷ *Digital Divide*, STANFORD, <https://cs.stanford.edu/people/eroberts/cs181/projects/digital-divide/start.html> (last visited Dec. 18, 2022).

¹⁵⁸ See Jerry Kang, *Cyber-Race*, 113 HARV. L. REV. 1130, 1135 (2000).

¹⁵⁹ See David Krum and Todd Richmond, *How to Build an Inclusive Metaverse*, IEEE TRANSMITTER (June 14, 2022), <https://transmitter.ieee.org/how-to-build-an-inclusive-metaverse/> (“Cost ... will likely emerge as one of the biggest barriers to inclusive adoption. ... [H]ardware and network speed are only two factors. ... [I]ndividuals with more financial means are more likely to participate in the metaverse, as users require access to a space of about 6 feet by 6 feet for a truly immersive experience.”).

¹⁶⁰ Digital Divide, *supra* note __ (citing *Falling Through the Net: Defining the Digital Divide*, NTIA).

¹⁶¹ National Telecommunications and Information Administration, *Digital Nation Data Explorer*, June 10, 2020, <https://www.ntia.doc.gov/data/digital-nation-data-explorer#sel=homeInternetUser&demo=scChldHome&pc=prop&disp=chart> (89,317,301 of families with children (73.1%) had Internet at home.).

¹⁶² Andrew Perrin & Erica Turner, *Smartphones help blacks, Hispanics bridge some – but not all – digital gaps with whites*, PEW RESEARCH CENTER, Aug. 20, 2019, <https://www.pewresearch.org/fact-tank/2019/08/20/smartphones-help-blacks-hispanics-bridge-some-but-not-all-digital-gaps-with-whites/>.

¹⁶³ GARON, PARENTING FOR THE DIGITAL GENERATION at 94.

¹⁶⁴ See Joshua E. Weishart, *Democratizing Education Rights*, 29 WM. & MARY BILL RIGHTS J. 1, 14 (2020) (“Democratic education demands “democratic equality,” which, in turn, demands greater needs-based equity for disadvantaged students and high-quality educational adequacy for all students.”).

¹⁶⁵ See *San Antonio Independent School District v. Rodriguez*, 411 U.S. 1 (1973).

state constitutional obligations and a more general understanding that adequate funding requires equal treatment for similarly situated students.¹⁶⁶ The digital divide threatens to increase this gap, but as the technologies become increasingly essential to the educational program, the need for sustainable funding will only grow.

In addition to the concern regarding access to resources, there is a parallel concern about the community that will be predominant on the metaverse, again stemming from concerns about the development of the internet and some aspects of the gaming culture. In 2000, Professor Jerry Kang noted that “race and racism are already in cyberspace.”¹⁶⁷ He raised concerns that have largely gone unanswered over the past two decades: Cyberspace enables new forms of social interaction. ... As computing-communication technologies advance to engage more senses, those bodily characteristics that signal a person's race will increasingly appear in cyberspace. What should decisionmakers do to shape this architecture?”¹⁶⁸ The trends regarding the assimilation of race and gender valuation have already made their way into the early development of the metaverse.

In mixed or virtual reality, where identity both reflects and determines social capital, avatar NFTs (aka [pictures for proof] PFPs) pose ethical challenges around gender and race representation, and provoke questions about whether they have true utility or are just a thinly veiled flex.

An investor and developer demographic that skews mostly male and mainly White translates into a market that favors PFPs most representative of those who are snapping up these high-status assets; female Cryptopunks and those with darker skin tend to sell for less than avatars with male traits or fair skin, while female and dark-skinned Meebits appear to be less in-demand than white males. This threatens to upend any idea of a metaversal utopia even as the industry has rapidly advanced throughout 2021.¹⁶⁹

The educational metaverse has an obligation to develop an architecture that promotes equality across race, gender, sexual identity, nationality, and other parameters. This may be as simple as assuring that skin tone palettes include all possible colors and shades rather than merely a few forced choices.¹⁷⁰ The power to “improve” one’s body image, complexion, and other features could lead to social disassociation from one’s actual life. “[C]reating a perfect avatar to represent ourselves virtually could create its own problems. If Instagram is anything to go by, it’s unlikely we’ll rush to customise our avatars with features that society deems ‘undesirable.’”¹⁷¹

Body shaming incidents on Second Life portend issues that may likely emerge in other metaverse communities, particularly among adolescents for whom these issues are central to self-

¹⁶⁶ See William S. Koski, *Of Fuzzy Standards and Institutional Constraints: A Re-Examination of the Jurisprudential History of Educational Finance Reform Litigation*, 43 SANTA CLARA L. REV. 1185, 1298 (2003) (collecting cases).

¹⁶⁷ Jerry Kang, *Cyber-Race*, 113 HARV. L. REV. 1130, 1135 (2000).

¹⁶⁸ *Id.*

¹⁶⁹ Adriana Hamacher, *Zeroing in on NFT Diversity For a More Inclusive Metaverse*, DECRYPT (Jan. 4, 2022).

¹⁷⁰ See Tayce Bandeira Marchesi, *Avatars, Skins, and Realistic Representations: The Impact of the Metaverse on Your Image*, Lootverse Gazette (June 21, 2022), <https://gazette.lootverse.com/avatars-skins-realistic-representations-the-impacts-of-the-metaverse-on-your-image/>; Maghan McDowell, *Race, gender and representation: The grey area of the metaverse*, VOGUE BUSINESS (Sept. 28, 2021), <https://www.voguebusiness.com/technology/race-gender-and-representation-the-grey-area-of-the-metaverse>.

¹⁷¹ Sophie Wilson, *In the metaverse, everyone looks the same*, Dazed Beauty (Apr. 13, 2022),

identity.¹⁷² Second Life began to shift from non-human to human avatars as part of a 2011 “upgrade” that improved the photorealism of the avatars.¹⁷³ This design choice led to changes in user behavior. And that, in turn, led to expectations of beauty. According to Wagner James Au:

People were saying, 'You can be anything, you can be as beautiful as you want — or can afford — to be, so why are you choosing to be fat?' ... For those users whose avatars fall outside the norm, incidents of harassment still happen all the time, Au added. Anyone with a large avatar is going to get at least a few nasty comments.¹⁷⁴

The metaverse does not create these issues, but in the educational setting, there is at least a hope that the classroom remains a safe environment free from the worst of these pressures. “The metaverse brings along or intensifies many of the problems we face in the real world about topics such as rights, identity, respect and happiness today...”¹⁷⁵ To overcome the exacerbation of real world problems, intentional design must be incorporated to create an inclusive, equitable teaching environment. The Columbia Center for Teaching and Learning suggests five principles that will help establish an inclusive online classroom:

- Principle 1: Establish and support a class climate that fosters belonging for all students.
- Principle 2: Set explicit student expectations.
- Principle 3: Select course content that recognizes diversity and acknowledges barriers to inclusion.
- Principle 4: Design all course elements for accessibility.
- Principle 5: Reflect on one’s beliefs about teaching (online) to maximize self-awareness and commitment to inclusion.¹⁷⁶

These principles were developed with college courses in mind, but they work equally well to reinforce the importance of equity and inclusion in all classrooms and programs.

From a design standpoint, there are other minimum recommendations. “Building an inclusive metaverse starts with how that very metaverse is built.”¹⁷⁷ For example, inclusion occurs most successfully when the design team is itself inclusive.

The number one thing any creator can do to be more inclusive is to literally include people. It's that simple. Ensure as many types of identities, especially marginalized ones, are represented among creators during the entire life cycle of a product, from ideation to ongoing development. Ensure that people are in the room

¹⁷² See Oscar Holland, *Virtual body-shaming: Why the metaverse won't fix our IRL beauty standards*, CNN (Sept. 9, 2022).

¹⁷³ *Id.*

¹⁷⁴ *Id.*

¹⁷⁵ McDowell, *supra* note __ (quoting Matthew Ball). <https://www.dazeddigital.com/beauty/article/55818/1/in-the-metaverse-everyone-looks-the-same-beauty-insecure-social-media>.

¹⁷⁶ Columbia Center for Teaching and Learning, https://ctl.columbia.edu/files/2020/02/Guide-for-Inclusive-Teaching-at-Columbia_Accessibility-Revisions_15-January-2020_FINAL.pdf.

¹⁷⁷ Justine Jones, *Meta-Clusivity: Building an Inclusive Metaverse*, Assembly (Apr. 7, 2022), <https://www.assemblyglobal.com/insights/meta-clusivity-building-an-inclusive-metaverse>.

who you want to do right by, then listen to them. Better yet, step aside and let them lead.¹⁷⁸

In addition to starting with a representative design team, projects need to test their design choices against their own assumptions and potential for implicit biases. “[T]here are tantalizing glimpses of what may be achievable, such as data to suggest that taking on an alternate metaverse persona can lead to a reduction in implicit bias.”¹⁷⁹

Numerous divides exist along with bias that is baked into every digital interface and technology. While [User Interface/User Experiences (UI/UX)] design doesn’t avoid equity or ethical considerations, it often overlooks it. The reasons are myriad – lack of understanding of the issues (exacerbated by groups of developers that lack diversity), lack of training on how to include equity/ethical considerations, development deadlines, etc. Whatever the reason, Web 3.0 needs to do better.

This is where creating a new field comes into play. Equitable Interfaces/Ethical Experiences (EI/EX) design will allow critical factors to be considered during the technology development process. Working in tandem with UI/UX design, EI/EX design brings humanity and inclusion into the discussion in ways not previously possible. While we could try and move the needle on UI/UX design, the challenges around equity and ethics are so pervasive and so important, they deserve their own field of praxis.

For too long the digital epoch has favored relatively few while marginalizing many. This dynamic needs to change in Web 3.0 and beyond, and rigorous, thoughtful EI/EX design is one way to get to a place that is more fair, less toxic, and more sustainable for more people.¹⁸⁰

The educational metaverse can be at the forefront of the Equitable Interfaces/Ethical Experiences (EI/EX) design movement, making this a requirement for the development of government-funded programs. Combined with WCAG standards and similar efforts to reduce barriers, these efforts could make the educational metaverse a place students seek out to feel safe as well as provide a model for the commercial metaverse.

7. Student Creativity and Metaverse IP

The proper design for the educational metaverse should also take student creativity into consideration as part of its fundamental design attributes. Operating metaverse does not change the fundamental intellectual property rules,¹⁸¹ but there are some significant consequences of operating within an environment that is entirely a copyrightable work. The metaphor of the metaverse tends to interfere with the regal relationship among the parties.

¹⁷⁸ *Id.* (quoting Paul Freibott, Senior Director of Research at Assembly).

¹⁷⁹ Hamacher, *supra* note __.

¹⁸⁰ Todd Richmond, *Equitable Interfaces/Ethical Experiences (EI/EX) design – how to make the metaverse not suck*, TECH + NARRATIVE LAB (Mar. 14, 2022), <https://technarrativelab.org/equitable-interfaces-ethical-experiences-ei-ex-how-to-make-the-metaverse-not-suck/>.

¹⁸¹ *E.g.*, 17 U.S.C. § 101 et. seq. (copyright); 15 U.S.C. §1051 et. seq. (trademarks); 35 U.S.C. § 1 et. seq. (patents); Defend Trade Secrets Act of 2016, Pub. L. No. 114-153, § 2(a), 130 Stat. 376, 376-80 (codified at 18 U.S.C. § 1836(b) (federal trade secret protection, complementing state trade secret protection under the Uniform Trade Secrets Act); and state statutes for publicity rights (as supplemented by false endorsement under §43(a), 15 U.S.C. § 1125).

First, a student is not “in the metaverse.” Instead, the student controls an avatar that interacts with the audiovisual works represented by the metaverse software. Each of these elements falls within the subject matter of copyright.¹⁸² The software created to operate the metaverse is likely owned by a commercial publisher such as Meta, Second Life, Microsoft, Epic Games (owner of Fortnite) or a similar provider. The publisher may license environments within the metaverse to particular operators of those experiences. For example, Microsoft’s AltspaceVR provides standardized and customizable events for use inside virtual worlds or as standalone VR environments.¹⁸³ To create such an event, the organizer must comply with the software license agreement, the terms of service agreement, and operate in the “community standards” requirements which are essentially incorporated by reference into the terms of service agreement.¹⁸⁴ If the event—say a classroom—were to operate within a broader metaverse, then there would also need to be a license agreement between the publisher of the metaverse and the provider of the event platform.

The agreements follow a sequence in which the publisher of the metaverse conditions the creation of the classroom environment on a software and usage license likely consisting of the software license, the conditions of use that bind the event operator, and an obligation to enforce terms from the publisher’s end user license agreement and community standards. The classroom operator would require a license from the school district to obligate it to adhere to all terms required by the metaverse publisher plus any additional terms of the classroom operator not inconsistent with the metaverse publisher’s terms, likely additional trademark obligations on behalf of the classroom operator. The classroom operator (and potentially the school district) would also include an end user license agreement to be accepted as a condition of the user of the software. This nest of agreements has proven generally successful in enforcing clickwrap¹⁸⁵ end user license agreements on online services.¹⁸⁶

The requirement that students agree to clickwrap agreements is not new.¹⁸⁷ Schools use a variety of tools to manage student enrollment, check for plagiarism, and operate learning management systems.¹⁸⁸ Students must generally adhere to the requirements of the contracts both because they have entered into contracts (that may be subject to later disaffirmance if they are

¹⁸² See 17 U.S.C. § 102 (including pictorial works and audiovisual works).

¹⁸³ *Creating an Event*, MIXED REALITY (MICROSOFT) (Jan. 26, 2022), <https://learn.microsoft.com/en-us/windows/mixed-reality/altspace-vr/tutorials/creating-an-event>.

¹⁸⁴ See *id.*

¹⁸⁵ 106 A.L.R.5th 309 (Originally published in 2003)

A “clickwrap” agreement appears when a user first installs computer software obtained from an online source or attempts to conduct an Internet transaction involving the agreement, and purports to condition further access to the software or transaction on the user’s consent to certain conditions there specified; the user “consents” to these conditions by “clicking” on a dialog box on the screen, which then proceeds with the remainder of the software installation or Internet transaction.

¹⁸⁶ *Id. citing* Meyer v. Kalanick, 2016 WL 4073071 (S.D. N.Y. 2016) (““Clickwrap agreements,” in which website users are required to click on an “I agree” box after being presented with a list of terms and conditions of use, are more readily enforceable than “browsewrap agreements,” in which a user can continue to use the website or its services without visiting the page hosting the browsewrap agreement....”).

¹⁸⁷ See Sara M. Grimes, *Persistent and Emerging Questions about the Use of End-User Licence Agreements in Children’s Online Games and Virtual Worlds*, 46 U.B.C. L. REV. 681 (2013).

¹⁸⁸ See *V. ex rel. Vanderhye v. iParadigms, LLC*, 562 F.3d 630 (4th Cir. 2009).

minors) and because the contracts are required as part of the educational program.¹⁸⁹ “[I]n many ways, [end user license agreements (EULAs)] currently serve as the legislative backbone of digital play environments. The primary role that EULAs have assumed within the structuring and governance of digital games has in turn contributed to a privileging of copyright and contract laws....”¹⁹⁰

In each of these agreements, there are key provisions addressing the ownership of the intellectual property rights of the parties. In the gaming environment, the agreements may specify that the licensee/user has the right to play the software but no ownership in any of the content in the game.¹⁹¹ In social media, the platform may go even further and claim a license for itself. For example, Meta’s Instagram using the following friendly language to grant itself a license in the intellectual property of its users:

When you share, post, or upload content that is covered by intellectual property rights (like photos or videos) on or in connection with our Service, you hereby grant to us a non-exclusive, royalty-free, transferable, sub-licensable, worldwide license to host, use, distribute, modify, run, copy, publicly perform or display, translate, and create derivative works of your content....¹⁹²

In the context of a high school or collegiate academic program involving visual art, literature, or engineering, the control by the gaming company or the rights acquisition by the social media company would each be problematic for the students. These licenses could also potentially interfere with commercial choices that the students might make with their works outside of the virtual classroom environment.

To the extent that the operator of the platform utilizes language as vague and self-serving as that of Instagram, there is also a concern that the student’s name, image, and likeness could be commercialized under the terms of this broad grant of rights.¹⁹³ The treatment of publicity rights as a category of intellectual property is not universally accepted. The International Trademark Association explains that “[t]he right of publicity is an intellectual property right that protects against the misappropriation of a person’s name, likeness, or other indicia of personal identity—such as nickname, pseudonym, voice, signature, likeness, or photograph—for commercial

¹⁸⁹ *See id.*

¹⁹⁰ Grimes, *supra* note __ at 686. *See generally*, GREGORY F LASTOWKA, VIRTUAL JUSTICE: THE NEW LAWS OF ONLINE WORLDS (NEW HAVEN: YALE UNIVERSITY PRESS, 2010).

¹⁹¹ *See* Bryant Chambers, *You Don’t Own Your Own Games*, GAMESBEAT (June 23, 2013), <https://venturebeat.com/community/2013/06/23/you-dont-own-your-games/> (“OWNERSHIP. **Licensors retains all right, title and interest to the Software**, including, but not limited to, all copyrights, trademarks, trade secrets, trade names, proprietary rights, patents, titles, computer codes, audiovisual effects, themes, characters, character names, stories, dialog, settings, artwork, sounds effects, musical works, and moral rights.”) (emphasis in the original).

¹⁹² *Instagram Terms and Policies*, INSTAGRAM HELP CENTER https://help.instagram.com/581066165581870/?helpref=uf_share (Last visited Dec. 18, 2022).

¹⁹³ *See, e.g.*, Jon Solomon, Ready or Not, High School NIL Is Here, Global Sports Matters (Dec 7, 2021), <https://globalsportmatters.com/youth/2021/12/07/high-school-sports-nil-mikey-williams/> (“In July [2021], pressure from lawmakers in California, Florida, and other states forced the National Collegiate Athletic Association to abandon its longstanding prohibition on NIL compensation for college athletes – a major change that is bound to have a significant impact on high school sports, too.”).

benefit.”¹⁹⁴ Historically, however, the right was understood to be an extension of the right of privacy.¹⁹⁵

8. Other Terms of Service Considerations

Moving beyond intellectual property, there is also the extent to which such a provision would implicate the ability to share educational records. An interesting question arises as to whether the clause covers the name, directory information, or other information of the student. For example, two students post a selfie in which they show themselves holding report cards/transcripts highlighting their A grades. It is a photograph, so it is a “post ... that is covered by intellectual property rights” and therefore covered by the provision. At the same time, the photograph also includes FERPA-protected educational records in the form of the readable transcripts. The license grants the right to distribute the users’ “content,” but does that extend to the users’ educational records, particularly if reposted in commercial ads for the host service?

At best, the answer is unclear. “Your content” does not suggest that it includes your educational records as transmitted through the service. In the context of the educational metaverse, course assignments and many forms of educational records will likely be transmitted. As such, there is a need to move away from the social media and gaming origins of these platforms and instead create a contractual environment consonant with the educational goals that the metaphorical space is intended to create. This certainly raises a question whether the provision provided adequate notice under FERPA to constitute a meaningful request for consent.¹⁹⁶

Understandably, ISPs, the metaverse publisher, the producers of events and classrooms within the metaverse, the learning service providers, and everyone who processes the educational records may fall within FERPA’s non-consensual disclosure sphere, provide the statutory limitations are met.¹⁹⁷ But the statutory requirements to fall within the non-disclosure provisions are prescriptive

¹⁹⁴ Right of Publicity, Int. Trademark Ass’n., <https://www.inta.org/topics/right-of-publicity/> (last visited Dec. 19, 2022) (“We adopted a Board Resolution in 2019 that sets out proposed minimum standards for a right of publicity. These standards can be used as a foundation for jurisdictions that recognize, or are considering recognizing, publicity rights.”).

¹⁹⁵ See *Haelean Laboratories, Inc. v. Topps Chewing Gum, Inc.* 202 F.2d 866 (2d Cir. 1953); Samuel D. Warren and Louis D. Brandeis, *The Right to Privacy*, 4 HARVARD L. REV. 193 (1890); William L. Prosser, *Privacy*, 48 CAL. L. REV. 383 (1960).

¹⁹⁶ See 34 Code Fed. Reg. § 99.31, § 99.33(a).

¹⁹⁷ 34 Code Fed. Reg. § 99.31.

(a) An educational agency or institution may disclose personally identifiable information from an education record of a student without the consent required by § 99.30 if the disclosure meets one or more of the following conditions:

...

(B) A contractor, consultant, volunteer, or other party to whom an agency or institution has outsourced institutional services or functions may be considered a school official under this paragraph provided that the outside party -

(1) Performs an institutional service or function for which the agency or institution would otherwise use employees;

(2) Is under the direct control of the agency or institution with respect to the use and maintenance of education records; and

(3) Is subject to the requirements of § 99.33(a) governing the use and redisclosure of personally identifiable information from education records.

and for noneducational hosting companies, they may be difficult to follow. Instead, the service providers would likely prefer to receive the broader rights they can acquire with consent. But consent to provide FERPA records can only be obtained from a minor's parents or guardians. It seems quite inconsistent with the statute for those rights to be subject to waiver or consent by the very minor pupils the law is intended to protect. And although Clickwrap agreements are extremely efficient at obtaining consent quickly, those agreements likely will not be offered to the parents of the students who use and install the programs unless such parental participation is engineered into the ethical user experience.

As a result of this inherent conflict, the educational metaverse should be designed with a different model for end user license agreements. It should include provisions for a dual account, enabling each student's parent or guardian to provide the necessary consents and have appropriate levels of account access. The degree of account access should reflect the privacy rights of the students, the parental obligations, of supervision, and the ability of the students to increase access to their parents or guardians as the student determine to be helpful.

The educational metaverse should limit the use of the information acquired by individual students and their parents or guardians to that necessary for the provision of educational services, operations, and payment as needed while limiting the re-use of the information for commercial exploitation in any manner.¹⁹⁸

A limit to the provision of educational services, operations, and payment would, in turn, resolve the issues of the acquisition of the students' intellectual property rights. If the rights are acquired for these particular uses, then the students' own rights to commercialize their content or exploit their copyrights, publicity rights, or other interests will be protected. This is not an automatic or even obvious requirement of the educational metaverse, but if the metaverse is going to achieve its true educational potential, then this additional layer of student protection is necessary.

While it would be best if the educational metaverse offered these protections under federal law, there is no reason to wait for that step to occur. Leaders in the educational metaverse movement can create model contractual provisions and Equitable Interfaces/Ethical Experiences (EI/EX) design to build these limitations into the license agreements and interface structure to achieve these goals as a matter of contractual relations. The internet is primarily governed by contract and code, and the educational metaverse will be no different.

These considerations are not merely suggestions for consideration as best practices. At least in the context of First Amendment considerations, the students' constitutional rights cannot be easily abridged by resorting to contractual waivers. In the proceedings that led to the Supreme Court decision in *Mahanoy*, the Third Circuit addressed the school district's argument that B. L. had waived her free speech rights.

The School District ... argues that by agreeing to certain school and team rules, B. L. waived her First Amendment right to post the "fuck cheer" snap. We disagree. To begin, we note that the District Court ruled that requiring B.L. to waive her First Amendment rights as a condition of joining the team violated the unconstitutional conditions doctrine. ... No doubt, for the government to condition participation in a beneficial program on a waiver of First Amendment rights raises serious

¹⁹⁸ This is directly analogous to the HIPAA limitations on patient data to "Uses and Disclosures for Treatment, Payment, and Health Care Operations." See 45 Code Fed. Reg. 164.506 (2022).

constitutional concerns, particularly where the government “seek[s] to leverage [benefits] to regulate speech outside the contours of the program itself.”¹⁹⁹

The Third Circuit does not suggest that a student’s First Amendment rights can never be waived, but it questions the extent to which such waiver is appropriate. “[T]here are a wide range of extracurricular activities and student roles that may make conditions on speech more or less connected to the needs of the program. Fortunately, we need not decide on which side of the line this case falls because we conclude that B.L. did not waive her right to the speech at issue here.”²⁰⁰ The Third Circuit found that the “Respect Rule” was limited to school-sponsored activities by reading the sentence “[r]emember, you are representing your school when at games, fundraisers, and other events”²⁰¹ as a limit on the scope of the provision. In a rather absurd interpretation of the “Negative Information Rule,” the Third Circuit found that “[t]here will be no toleration of any negative information regarding cheerleading, cheerleaders, or coaches placed on the internet.’ . . . reaches only ‘information,’ a term denoting matters of fact. . . .”²⁰² Most importantly, under the Personal Conduct Rule that B. L. and her parents agreed to follow, the language prohibiting the tarnishment of the school or the sports program or participating in “conduct . . . judged to reflect a discredit upon himself/herself, the team, or the Mahanoy Schools” was declared “too obscure, and too dependent on the whims of school officials, to give rise to a knowing and voluntary waiver of B.L.’s rights to speak as she did.”²⁰³

The Supreme Court never addressed the portion of the Third Circuit opinion which it affirmed by providing its own analysis. Although the Supreme Court criticized the reasoning behind the Third Circuit’s position regarding the protection of student speech, it never suggested that the three contractual provisions should govern the case and empower the school to exclude the student from participation in the athletic program.²⁰⁴

Although there may be situations in which a school can condition the waiver of students’ fundamental free speech rights on participation in their academic activities, this strongly indicates that such waivers are going to be severely limited and narrowly interpreted. Incorporating by reference various generic community standard provisions will be unlikely to constitute either

¹⁹⁹ B.L. by and through *Levy v. Mahanoy Area Sch. Dist.*, 964 F.3d 170, 192 (3d Cir. 2020), cert. granted, 208 L. Ed. 2d 509 (Jan. 8, 2021), and aff’d but criticized, 210 L. Ed. 2d 403 (June 23, 2021) (*quoting* *Agency for Int’l Dev. v. All. for Open Soc’y Int’l, Inc.*, 570 U.S. 205, 214–15, (2013) and *citing* *Koontz v. St. Johns River Water Mgmt. Dist.*, 570 U.S. 595, 604–06 (2013)).

²⁰⁰ *Id.*

²⁰¹ *Mahanoy Area Sch. Dist.*, 964 F.3d at 193. The Respect Rule provided the following: Please have respect for your school, coaches, teachers, other cheerleaders and teams. Remember, you are representing your school when at games, fundraisers, and other events. Good sportsmanship will be enforced[;] this includes foul language and inappropriate gestures.

²⁰² *Id.*

²⁰³ *Id.* The “Personal Conduct Rule” in MAHS’s student handbook provides:

Participation on an athletic team or cheerleading squad in the Mahanoy Area School District is a privilege and the participants must earn the right to represent Mahanoy Schools by conducting themselves in such a way that the image of the Mahanoy School District would not be tarnished in any manner. Any participant whose conduct is judged to reflect a discredit upon himself/herself, the team, or the Mahanoy Schools, whether or not such activity takes place during or outside school hours during the sports season, will be subject to disciplinary action as determined by the coach, the athletic director and/or the school principal.

²⁰⁴ *Mahanoy*, 141 S. Ct. at 2044.

meaningful disclosure of the speech restrictions or an appropriate balancing between the First Amendment rights and the government's interest in restricting such speech. Moreover, in situations where the use of the educational metaverse is required to complete an assignment or an educational requirement, then the standard policy of suspending or terminating a person's account for violating the terms of the community standards or terms of service will likely violate the students First Amendment rights as well as their procedural due process rights regarding any suspension.²⁰⁵ As a result, the fundamental rights of students must be taken into consideration whenever the educational metaverse becomes an educational requirement rather than merely an optional extracurricular activity.

Given the significant challenges that school districts and college systems will face regarding the compliance with COPPA, FERPA, the Rehabilitation Act, and various contractual obligations, the Department of Education and the FTC should take action to facilitate the development of the educational metaverse by developing a set of standards that the metaverse publishers and various vendors can rely upon to determine their compliance with the legal obligations. The two agencies could develop a "safe harbor framework"²⁰⁶ to promote industry compliance with the various requirements under the authority of the two agencies. While self-certification alone generally is insufficient, a combination of self-certification and public audits conducted by the public school districts and universities could result in significantly more compliance with the standards outlined in this article and enable smaller school systems to benefit from the compliance work undertaken by early adopters of the systems.²⁰⁷ Such a model would make it easier for the nonprofit sector to support and facilitate educational metaverse programs that met the obligations and even provide financial support for these efforts.²⁰⁸

Conclusion

The educational metaverse holds tremendous promise for the next generation of educational exploration. For some students, the use of virtual reality will free them from physical limitations.

²⁰⁵ *Goss v. Lopez*, 419 U.S. 565 (1975) (students are entitled to due process whenever they are suspended or otherwise barred from school for "more than a trivial period."). See E.A. Gjelten, *What Are Students' Rights in School Disciplinary Proceedings?*, LAWYERS.COM (Feb. 5, 2019), <https://www.lawyers.com/legal-info/research/education-law/what-are-students-rights-in-school-disciplinary-proceedings.html>.

²⁰⁶ Although the self-certification and standards did not meet European Union standards, it provided an improvement over the statutory model. See, e.g., *Issuance of Safe Harbor Principles and Transmission to European Commission Notice*, 65 FED. REG. 45666 (July 24, 2000); *U.S.-EU Safe Harbor Framework: A Guide to Self Certification*, U.S. DEP'T. OF COM. (March 2013), https://2016.export.gov/build/groups/public/@eg_main/@safeharbor/documents/webcontent/eg_main_061613.pdf. See also *Schrems v. Facebook Ireland, Ltd.*, ECLI:EU:C:2020:559, ¶ 55 (Case C-311/18) (July 16, 2020) (noting continuing non-compliance of self-certification under the Privacy Shield, the successor program to the Safe Harbor).

²⁰⁷ See Benjamin Herold, *Teaching in the 'Metaverse'? Roblox Looks to Make It a Reality*

With millions in new grants to STEM organizations like Project Lead the Way, EducationWeek (November 29, 2021 | Corrected: November 30, 2021), <https://www.edweek.org/teaching-learning/teaching-in-the-metaverse-roblox-looks-to-make-it-a-reality/2021/11> ("With millions in new grants to STEM organizations like Project Lead the Way, the gaming platform is moving into K-12 education.).

²⁰⁸ See, e.g., *EON Knowledge Metaverse Grant Program*, EON REALITY, <https://eonreality.com/eon-knowledge-metaverse-grant-program/> (last visited Dec. 22, 2022) ("The EON Knowledge Metaverse (EKM) Program provides Grants for Post-pandemic Resilient Recovery in Education, Enterprise, & Communities. Together with our 42 million EON users and Partners in 73 countries EON is building the EON Knowledge Metaverse."); Brian Womack, *DFW startup offering an educational metaverse lands seed funding of over \$3 million*, DALLAS BUSINESS JOURNAL (May 18, 2022) ("STEMuli is offering an "educational metaverse" that launched at Dallas Hybrid Prep last year. ... [It] landed \$3.25 million in seed funding.").

For some topics, the ability to visualize in 3D, to connect seamlessly with people from around the globe, and to shape new methods of collaboration offer significant opportunities for innovation and student engagement.

At the same time, however, both old and new considerations must be taken into account. The virtual schoolhouse must protect the procedural due process rights of students just like its real-world counterpart. The right to speak, to protest, and to engage remains as robust online as it does in the classroom. And the students' rights to their commercial name and image as well as their creative works should not become the property of the or the intermediaries with which they partner just because EULAs and other contract provisions make these rights easy for the metaverse publishers to acquire.

Still, the metaverse is also a new medium, and as with the introduction of any such new modality, it will carry with it some attributes of its precursors but it will also take on attributes that are as unique as is the medium itself. The mash-up of education as one medium with the more challenging media of video games and social media cannot be easily predicted. But to achieve the goals of diversity, inclusion, and equity for all individuals, including people of all races, genders, and creeds, as well as all children so none are left behind, then the developers of the educational metaverse must embrace ethical user interface and design obligations to ensure universal access and to intentionally address assumptions and biases that often become embedded in new technologies.

If the designers of the educational metaverse can achieve these goals, then the opportunity for new vistas of education can be achieved. Only time will tell how the story will evolve. Welcome to the metaverse. Hopefully, it will be open to all.