

Protecting Children in Virtual Worlds Without Undermining Their Economic, Educational, and Social Benefits

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Abstract

Advances in virtual world technology pose risks for the safety and welfare of children. Those advances also alter the interpretations of key terms in applicable laws. For example, in the Miller test for obscenity, virtual worlds constitute places, rather than "works," and may even constitute local communities from which standards are drawn. Additionally, technological advances promise to make virtual worlds places of such significant social benefit that regulators must take care to protect them, even as they protect children who engage with them.

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I. Introduction

As virtual worlds become an increasingly common destination for children, regulators are taking notice.¹ Virtual worlds might seem relatively well protected from regulation, in light of the repeated failure of legislation to pass constitutional muster when restricting children's access to violent online games (or even enforce rating systems). However, this perspective relies heavily on a notion of virtual worlds as games.

While virtual worlds do have their roots in games, developments in this technology require a broader perspective: Virtual worlds are venues for a wide variety of activities, from some that traditionally demand protection of children (sex and violence) to those with significant socially redeeming value (such as education, culture, civic engagement and careers).

In this Article, we provide a foundation for a broader view of the regulatory needs of virtual worlds, and explore its implications. In the next section, we provide a very brief history of virtual worlds, and describe six features that many virtual worlds are likely to possess in the near future: *realism* in visual and physical modeling of real-world physical processes, particularly avatars (representations of users); *user-generated content*, which supplements or replaces content generated by the platform developer; extensive *social interactivity* between participants, through networking websites and voice communication; *environmental integration* of the real and virtual worlds, which allows actions in one environment to alter the state of the other; *physical integration* of users and avatars, which allows the modeled physical experience of the avatar to alter the physical experience of user, and vice versa; and *economic integration*, which allows actions taken in the virtual world to affect users' real-world economic status.

1. See *Hearing on Online Virtual Worlds: Applications and Avatars in a User-Generated Medium Before the Subcomm. on Telecommunications and the Internet of the H. Comm. of Energy and Commerce* (2008) (providing congressional testimony regarding children and virtual worlds), available at http://energycommerce.house.gov/index.php?option=com_content&view=article&id=238&catid=32&Itemid=58; see also Anne Broache, *Ban 'Second Life' in Schools and Libraries, Republican Congressman Says*, CNET NEWS, May 7, 2008, http://news.cnet.com/8301-10784_3-9937956-7.html (last visited Sept. 29, 2009) (reporting Rep. Mark Kirk's call to ban access to social networking sites and virtual worlds in schools and libraries) (on file with the Washington and Lee Law Review); New World Notes: IRS Report Recommends Self-Reporting Virtual World Income; *Second Life* Singled Out Due to IP Rights, Jan. 12, 2009, <http://nwn.blogs.com/nwn/2009/01/irs-report-reco.html> (last visited Sept. 29, 2009) (describing the difference between *Second Life* and "massively multiplayer online role-playing games" (MMORPGs) such as *World of Warcraft* for taxation purposes) (on file with the Washington and Lee Law Review).

In Part III, we examine the implications of these six features for laws protecting children from explicit content, sexual exploitation and economic exploitation. Regarding explicit content, we draw three conclusions. First, a high degree of realism makes it likely that virtual worlds will depict explicit material from which children must be protected, and may vitiate defenses that such material is not "real." Second, sufficient degrees of user-generated content make it more appropriate to view virtual worlds as "places" rather than as "content"; thus, accusations of obscenity must be directed at the content, not the virtual world itself. Third, the notion of a virtual world as a "place" is strengthened by social interactivity and environmental integration—enough to justify viewing the virtual world as a community (from which one can derive "local community standards"). Regarding sexual exploitation, we conclude that social interactivity increases the risk of such behavior, and that physical and environmental integration broadens its definitions to include more (and more serious) infractions despite the fact that a child may never meet the adult in real life. Regarding economic exploitation, we conclude that economic integration increases the chances that children will be defrauded and makes possible new forms of child labor, including activities that blur the distinctions between work and remunerative play.

We use Part IV to emphasize a point that can easily be lost when taking the narrow perspective of "virtual worlds as games": As virtual worlds implement the features described above, they become increasingly useful venues for work, education, and civic and cultural engagement. Thus, it is essential that virtual worlds be regulated in such a way that these socially-beneficial uses by children are not hindered, and are perhaps even encouraged. Finally, we summarize our conclusions in Part V.

II. Developing Features of Virtual Worlds

Virtual worlds have their roots in fantasy games, like *Dungeons and Dragons*, in which players would meet in real life (often a college dormitory) to take on the roles of wizards, warriors and the like, pursue quests and battle one another. The games were overseen by a Dungeon Master who was responsible for sketching the basic parameters of the plot, with dice used to determine the outcomes of particular events (such as a battle).

As computing and internet connections became available, fantasy games moved online. The first popular online multi-user dungeon (MUD) was developed in 1978 by Roy Trubshaw and Richard Bartle at Essex University in

England.² The link between the MUD and *Dungeons and Dragons* is only indirect. As Bartle explains:

Whether one game influenced the other, or it is simply that the concept of an adventure fantasy world is a deeper archetype of our collective human subconscious, both D&D and MUD's share an essential characteristic: whether played with dice in a college dorm or with a computer on the internet: the complex, alternate reality they describe takes place primarily in the players' imaginations.³

These precursors of virtual worlds *forced* players to rely heavily on imagination, as they were entirely text based. Virtual worlds have progressed in many ways since that point. A comprehensive history of virtual worlds is beyond the scope of this Article, and in particular we have no interest in tracing the many technological advances that led to the worlds existing today.⁴ Instead, we identify six key features that developers have pursued as they improve virtual world technology. While there are many other features that are important, we focus on these six because (as will become clear in Part II) they have direct ramifications for the welfare and safety of children.

A. Realism in Physical and Visual Modeling

Improvements in computer hardware, software and internet connectivity have transformed virtual worlds from text based interaction relying heavily on user imagination to surprisingly detailed visual representations. Players in the fantasy game *World of Warcraft*⁵ see extraordinary landscapes and riveting battles featuring hundreds of avatars (graphic representations of characters) pitting buxom maiden warriors against hulking beasts; though the content is fantastical, the graphics are surprisingly realistic. Graphical representations are tied to elaborate "physics engines" that replicate real-world physical processes. For example, in *Second Life*, letting go of an object causes it to plummet to the

2. See Richard Bartle, *Summary MUD History*, http://www.livinginternet.com/d/di_major.htm (last visited Sept. 29, 2009) ("The first MUD, an adventure game with multiple players, was developed by Roy Trubshaw and Richard Bartle at Essex University in England in 1978.") (on file with the Washington and Lee Law Review).

3. *Id.*

4. See generally EDWARD CASTRONOVA, *SYNTHETIC WORLDS: THE BUSINESS AND CULTURE OF ONLINE GAMES* (2005) (providing an in-depth exploration of the history and nature of virtual worlds).

5. *World of Warcraft*, www.worldofwarcraft.com (last visited Sept. 29, 2009) (on file with the Washington and Lee Law Review).

ground, and standing on a windy plane causes an avatar's hair to move much as it would in real life.⁶

B. User-Generated Content

Most virtual worlds allow players to modify their avatars, but usually by choosing from a variety of elements provided by the virtual world developer (for example, choosing hair styles, facial configurations, etc.). Linden Lab has gone far beyond this, allowing users in their virtual world, *Second Life*, the ability to import graphic textures from outside the virtual world, and then to apply those textures to primitive building blocks ("prims").⁷ *Second Life* users (who often call themselves "residents") use these textures and textured prims to design avatars and clothing, as well as cottages, townhouses and skyscrapers, situated on a landscape they themselves create.⁸ While no other world yet allows this degree of user-generated content to be created by activities within the world, platforms like Forterra, Inc.'s OLIVE allow users to import content created in third-party 3D-modeling tools.⁹

C. Social Interaction

While players in the first MUD communicated entirely through text, many virtual worlds now enable voice communication, vastly improving the ability of virtual world users to forge social connections.¹⁰ Moreover, most virtual worlds have integrated social networking tools, similar to those seen on the popular websites Facebook¹¹ and MySpace.¹² Such social networking originated in

6. Cf. *id.* (providing an example of *Second Life*).

7. See M. BELL & S. WILEY ROBBINS, *SECOND LIFE FOR DUMMIES* 85–86 (2008) (instructing readers on the process of creating an avatar).

8. See Cory Ondrejka, *Escaping the Gilded Cage: User Created Content and Building the Metaverse*, in *THE STATE OF PLAY: LAW, GAMES, AND VIRTUAL WORLDS* 164–66 (Jack M. Balkin & Beth Simone Noveck eds., 2006) (describing user productivity in *Second Life*).

9. See Forterra Systems, Inc. OLIVE™—Purpose Driven Virtual Worlds for Everyone, http://www.forterrainc.com/images/stories/pdf/OLIVE_Dec07_Final_Rev.pdf (last visited Sept. 29, 2009) (providing a PDF brochure for Forterra's OLIVE™ software) (on file with the Washington and Lee Law Review).

10. See Greg Wadley, Martin Gibbs, & Peter Benda, *Speaking in Character: Using Voice-Over-IP to Communicate Within MMORPGs* (Working Paper, 2007), available at <http://disweb.dis.unimelb.edu.au/staff/gwadley/roc/IE07-SpeakingInCharacter.pdf> (describing the advent of voice-over-IP in MMORPGs).

11. Facebook, www.facebook.com (last visited Sept. 29, 2009).

12. MySpace, www.myspace.com (last visited Sept. 29, 2009).

fantasy game worlds from necessity. For example, players in *World of Warcraft* form "guilds" to engage in quests that can require the cooperation of up to forty players.¹³ Players in the libertarian/capitalist game world *EVE Online* form corporations to vie for hegemony of asteroids, on which they can mine valuable raw materials.¹⁴ Many virtual worlds—particularly those directed at children—are essentially three-dimensional versions of social networking sites, emphasizing friendship and social interactions with only limited game content.¹⁵

D. Environmental Integration

Recent technological developments have allowed content in virtual worlds to be affected by—and affect—the state and progress of the outside world. The simplest linking is to bring other internet content into the world. For example, the software developer Pachube touts itself as "a service that enables you to connect, tag and share real time sensor data from objects, devices, buildings and environments around the world."¹⁶ The key aim is to facilitate interaction between remote environments, both physical and virtual.¹⁷ Pachube relied on Extensible Environmental Markup Language (EEML), which provides a general protocol for tagging data about environmental information that can be used to capture details of weather, traffic patterns, or the state of a computer network.¹⁸ Environmental integration allows virtual worlds to intermediate

13. See Daniel Terdiman, *Power Lurching with Wizards and Warriors*, CNET NEWS, Feb. 15, 2006, http://news.cnet.com/Power-lurching-with-wizards-and-warriors/2100-1043_3-6039669.html (last visited Sept. 29, 2009) (describing a *World of Warcraft* guild with a high concentration of wealthy members) (on file with the Washington and Lee Law Review).

14. See *EVE Online*, http://www.eveonline.com/faq/faq_01.asp (last visited Sept. 29, 2009) (detailing the virtual world *EVE online*) (on file with the Washington and Lee Law Review).

15. Nic Mitham, *Kids, Tweens and Teens in Virtual Worlds Case Study*, <http://www.kzero.co.uk/blog/?p=2722> (last visited Sept. 29, 2009) (linking to a study on virtual worlds) (on file with the Washington and Lee Law Review).

16. Pachube, <http://www.pachube.com/> (last visited Sept. 29, 2009) (on file with the Washington and Lee Law Review).

17. See Mark Wallace, *IBM Sensors Link Real World and Virtual World*, May 21, 2007, <http://www.3pointd.com/20070521/ibm-sensors-link-real-world-and-virtual-world/> (last visited Sept. 29, 2009) (showing Bluetooth interaction between the real world and *Second Life*) (on file with the Washington and Lee Law Review).

18. See Extended Environments Markup Language (EEML), <http://www.eeml.org/> (last visited Sept. 29, 2009) ("EEML supports installations, buildings, devices and events that collect environmental data and enables people to share this resource in realtime either within their own organizations or with the world as a whole via an internet connection or mobile network

"smart home" technology by acting as 3D virtual representations of real homes. For example, one could enter a virtual world to see and change the state of one's home. Similarly, one could see a virtual representation of traffic patterns to plan a travel route.

E. Physical Integration

A more speculative feature of virtual worlds is the integration of a person's physical experience in the real world with an avatar's synthesized physical experience in a virtual world. Nintendo's Wii remote has made headlines for allowing very simple physical integration: A person moving the Wii remote as if they are bowling causes their avatar to send a virtual bowling ball down the lane in a virtual setting.¹⁹ Many researchers are looking far beyond this technology. Mitch Kapor, who provided early funding for the development of *Second Life*, has been exploring 3D cameras that can capture gestures and even facial expressions, to be revealed by changes in the motion and expressions of an avatar.²⁰ Motion capture suits are being explored for similar purposes.²¹ Integration can go both ways, of course, allowing the synthesized physical experience of an avatar to be transmitted through a force-feedback device to create a sensation in the real world.²²

access.") (on file with the Washington and Lee Law Review).

19. See Will Greenwald, *Nintendo Wii*, *CNET Editor's Review*, CNET NEWS, http://reviews.cnet.com/consoles/nintendo-wii/4505-10109_7-31355104.html?tag=rate (last visited Sept. 29, 2009) (providing a detailed overview of the Wii gaming console) (on file with the Washington and Lee Law Review).

20. See Daniel Terdiman, *Mitch Kapor: 3D Cameras Will Make Virtual Worlds Easier to Use*, CNET NEWS, Feb. 15, 2008, http://news.cnet.com/8301-13772_3-9873205-52.html (last visited Sept. 29, 2009) ("3D cameras would allow the virtual world software to interpret how users are moving in the real-world and to translate that movement into the software. That could mean, then, that if the user raises his or her hand, so too does their avatar.") (on file with the Washington and Lee Law Review).

21. See Regina Lynn, *Motion-Capture Suits Will Spice Up Virtual Sex*, WIRED, May 9, 2008, http://www.wired.com/culture/lifestyle/commentary/sexdrive/2008/05/sexdrive_0509 (last visited Sept. 29, 2009) ("How soon will we be slipping gracefully into motion-capture suits or using 3-D cameras to capture those uniquely natural moves and engage our entire bodies in online sexual adventures, rather than limping along with keyboard and mouse? Sooner than you might think.") (on file with the Washington and Lee Law Review).

22. See Mike Yamamoto, *Gaming Vest Threatens to Blow You Away*, CNET NEWS, Feb. 22, 2008, http://news.cnet.com/8301-17938_105-9876654-1.html?tag=mncol (last visited Sept. 29, 2009) (describing a vest gamers can wear that provides the wearer with force feedback based on actions occurring in the virtual environment) (on file with the Washington and Lee Law Review).

F. Economic Integration

Any environment with scarce resources will develop an internal economy.²³ It is less common that the internal economy penetrates into the real-world economy—few people would pay real money for rights to a hotel in the board game Monopoly. Virtual worlds, however, have enough players with enough motivation to generate substantial demand to buy virtual goods with real money. Despite the fact that most of fantasy worlds (like *World of Warcraft* and *Everquest*) prohibit such transactions,²⁴ annual trade in such goods is reported to exceed one billion dollars.²⁵ Not surprisingly, an industry of "gold farmers" has arisen that plays in virtual worlds professionally, selling the goods they earn.²⁶

Virtual world developers are increasingly embracing these economic transactions. The virtual world *Entropia Universe* allows their currency and virtual goods to be redeemed for real money.²⁷ Now, many virtual worlds are

23. See CASTRONOVA, *supra* note 4, at 12 ("[C]ommercial activity seems to emerge automatically and with great gusto in these worlds.").

24. See, e.g., *World of Warcraft*, Terms of Use Agreement, <http://www.worldofwarcraft.com/legal/termsofuse.html> (last visited Sept. 29, 2009) (providing the MMORPG's terms of use) (on file with the Washington and Lee Law Review). The terms of service for Blizzard Entertainment's *World of Warcraft* state:

Blizzard does not recognize the transfer of WoW Accounts or Blizzard Accounts (each an "Account"). You may not purchase, sell, gift or trade any Account, or offer to purchase, sell, gift or trade any Account, and any such attempt shall be null and void. Blizzard owns, has licensed, or otherwise has rights to all of the content that appears in the Game. You agree that you have no right or title in or to any such content, including without limitation the virtual goods or currency appearing or originating in the Game, or any other attributes associated with the Account or stored on the Service. Blizzard does not recognize any purported transfers of virtual property executed outside of the Game, or the purported sale, gift or trade in the "real world" of anything that appears or originates in the Game. Accordingly, you may not sell in-game items or currency for "real" money, or exchange those items or currency for value outside of the Game.

Id.

25. See Susan Wu, *Virtual Goods: The Next Big Business Model*, June 20, 2007, <http://www.techcrunch.com/2007/06/20/virtual-goods-the-next-big-business-model> (last visited Sept. 29, 2009) ("People spend over \$1.5 billion on virtual items every year.") (on file with the Washington and Lee Law Review).

26. See, e.g., JULIEN DIBBELL, *PLAY MONEY: OR, HOW I QUIT MY DAY JOB AND MADE MILLIONS TRADING VIRTUAL LOOT 2* (2006) (providing the author's account of her attempt to join the "global exchange of fictional goods for very real currencies").

27. See Serena Lewis, *Playing Games Online for Cash—Join Entropia, Real Money for Real Fun*, EZINE ARTICLES, <http://ezinearticles.com/?Playing-Games-Online-For-Cash---Join-Entropia,-Real-Money-For-Real-Fun&id=1963329> (last visited Sept. 29, 2009) ("Entropia is the fantasy universe built to make you money in the real world.") (on file with the Washington and

pairing with companies like LiveGamer and FatFooGoo to facilitate such transactions, allowing the developer to earn a commission on each trade, and reducing the risk of fraud.²⁸

Second Life has uniquely strong economic integration. Like many fantasy-game worlds, *Second Life* has a currency (the "Linden"); unlike most of those worlds, the currency is freely traded on currency exchanges, at a floating rate that has historically averaged around 270 Linden dollars per U.S. dollar.²⁹ With over \$5.63 billion Linden dollars in circulation (with a value of over US \$20 million), and approximately \$300 million Linden dollars changing hands each day, *Second Life* has supported a vibrant class of entrepreneurs who are able to supplement—or even supplant—their real-life incomes, by selling virtual goods and services to other residents.³⁰

III. Legal Implications of Future Trends

United States state and federal law protects children from explicit content,³¹ subject to limitations on freedom of expression, and from sexual³² and economic³³ exploitation. The features of virtual worlds described in Part I allow for innovative violations of such protections, and also affect the appropriate interpretations of key terms in such protections, such as the

Lee Law Review); *see also* Vili Lehdonvirta, *Real-Money Trade of Virtual Assets: New Strategies for Virtual World Operators*, in *VIRTUAL WORLDS* 113, 113 (Mary Ipe, ed., 2008), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1351782 (noting the increasing frequency of game assets being traded for real money).

28. *See* Monetizing the Metaverse, *Metanomics* Transcript (Oct. 13, 2008), <http://www.slideshare.net/WeAreRemedy/101308-monetizing-the-metaverse-metanomics-transcript> (last visited Sept. 29, 2009) (presenting a transcript of a video of entrepreneurs in the game asset market discussing their experiences) (on file with the Washington and Lee Law Review).

29. *See* Economic Statistics (Raw Data Files), <http://secondlife.com/statistics/economy-data.php> (last visited Sept. 29, 2009) (providing all *Second Life* economic data used in this paragraph) (on file with the Washington and Lee Law Review).

30. *See, e.g.*, Fashion!, *Metanomics* Transcript (Oct. 15, 2007), <http://www.slideshare.net/WeAreRemedy/101507-fashion-metanomics-transcript> (last visited Sept. 29, 2009) (presenting an interview with a *Second Life* resident who created a successful line of virtual clothing) (on file with the Washington and Lee Law Review).

31. *See, e.g.*, *Ginsberg v. New York*, 390 U.S. 629, 633 (1968) (holding that a statute which prohibited the sale of obscene materials to minors did not violate any Constitutional freedoms guaranteed to minors).

32. *See* 18 U.S.C.A. §§ 2251–2260A (2009) (criminalizing the sexual exploitation of children).

33. *See* 29 U.S.C.A. § 212 (2009) (providing the child labor provisions of the Fair Labor Standards Act).

meaning of "explicit," "community standards," and "sexual conduct." In this Section, we describe those implications and discuss the applicability of existing law to virtual worlds.

A. Explicit Material

In this Section, we: (1) establish that virtual worlds can (and do) depict explicit material; (2) briefly describe extant law governing obscenity and child pornography, and children's access to material which is legal for adults but arguably inappropriate for children; and (3) explore how the features of virtual worlds alter the interpretation of key aspects of those laws.

1. Virtual Worlds Can (and Do) Depict Explicit Sexual Activity and Violence

Avatars in virtual worlds are merely computer generated representations of human users, so they can look like anything at all—from humans, to inanimate objects, to enormous spaceships, to animals.³⁴ With a few exceptions, most virtual worlds offer human-like avatars, and many also offer animals, robots, and more.³⁵ In virtual worlds where either, (a) the virtual world designer intentionally includes adult-oriented content, or (b) the virtual world designer grants users unfettered content creation abilities, avatars can and do have fully articulated bodies including genitals that are visible to other users when an avatar is caused, by the human controlling that avatar, to appear to be "naked" in the virtual world.³⁶ Humanoid robots and animals also can be, and are, depicted with human-like genitals.³⁷ As virtual worlds and games offer richer visual detail, it will become increasingly difficult to differentiate explicit content in virtual worlds from explicit photographs or video of actual human

34. See Edward Castronova, *Theory of the Avatar* (CESifo, Working Paper No. 863, 2003), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=385103 (providing further insight into the variety, nature, and implications of avatars).

35. See *id.* (describing the variety of avatars).

36. See Regina Lynn, *Second Life Gets Sexier*, WIRE, Aug. 25, 2006, <http://www.wired.com/gaming/virtualworlds/commentary/sexdrive/2006/08/71657?currentPage=all> (last visited Sept. 29, 2009) (summarizing a talk about sex in *Second Life* presented by Valadeza Anubis, "famous for creating avatar genitals and sex animations and other complex in-world sex tech") (on file with the Washington and Lee Law Review).

37. See *Second Life's Furies 1*, <http://xahlee.org/sl/fur.html> (last visited Sept. 29, 2009) (providing pictures of nonhuman avatars with human genitalia) (on file with the Washington and Lee Law Review).

bodies, or, in the case of the robot, animal, and other non-human avatars, explicit Hollywood-quality special effects.

Beyond the ever-increasing visual realism of virtual worlds, the physics and avatar animation software that controls many aspects of virtual worlds and avatars' interaction within them also moves closer and closer to an accurate depiction of reality with each iteration. The animation and physics software in virtual worlds control the interaction between objects in a virtual world, allowing the on-screen depiction of graphic sexual activity between avatars.³⁸ Already, virtual world users can and do position and animate their avatars to make them appear on the screens of the participants—and of other users who have avatars in the area—that their avatars are engaged in explicit sexual activity.³⁹ The movement and interaction of the avatars is controlled by animation software that interacts with the physics software.⁴⁰ As these tools become even more robust, users will be able to create significantly more realistic sexual animation sequences.

The end result of this progression is that virtual worlds of the future will allow the depiction of computer-generated sexual situations and imagery that is increasingly close to photo-realistic, raising questions about the applicability of current and potential future regulation of this content.

2. *Obscenity and Child Pornography Are Afforded No Protection*

Although the First Amendment⁴¹ broadly protects speech,⁴² including violent and sexual adult content, there are two types of adult material that are afforded no protection by the First Amendment: obscenity and child pornography.⁴³ The Supreme Court has held that laws regulating obscenity pass constitutional muster so long as they are "carefully limited . . . to works

38. See Mitch Wagner, *Sex in Second Life*, INFO. WK., May 26, 2007, <http://www.informationweek.com/news/software/hosted/showArticle.jhtml?articleID=199701944> (last visited Sept. 29, 2009) (explaining the process of *Second Life* sex) (on file with the Washington and Lee Law Review).

39. See *id.* ("The furniture, and other props, have attached software—in *Second Life* jargon, they're 'scripted'—to animate the user's avatar through the motions of sex.").

40. *Id.*

41. U.S. CONST. amend. I.

42. See, e.g., *Cohen v. California*, 403 U.S. 15, 25 (1971) ("One man's vulgarity is another man's lyric.").

43. See, e.g., *Reno v. ACLU*, 521 U.S. 844, 878 (1998) ("Transmitting obscenity and child pornography, whether via the internet or other means, is already illegal under federal law for adults and juveniles.").

which depict or describe sexual conduct . . . which, taken as a whole, appeal to the prurient interest in sex, which portray sexual conduct in a patently offensive way, and which, taken as a whole, do not have serious literary, artistic, political, or scientific value."⁴⁴ Subsequent decisions have clarified this test as follows:

(a) [W]hether the average person, applying contemporary adult community standards, would find that the work, taken as a whole, appeals to the prurient interest; (b) whether the work depicts or describes, in a patently offensive way, sexual conduct specifically defined by the applicable state law; and (c) whether the work, taken as a whole, lacks serious literary, artistic, political, or scientific value.⁴⁵

Within the guidelines of this standard (known as the *Miller* test), states and the federal government are able to regulate the distribution of obscenity in accordance with community standards. A state by state survey of obscenity laws is beyond the scope of this Article, but California's obscenity law serves as a relatively standard template:

As used in this chapter, the following definitions apply: (a) "Obscene matter" means matter, taken as a whole, that to the average person, applying contemporary statewide standards, appeals to the prurient interest, that, taken as a whole, depicts or describes sexual conduct in a patently offensive way, and that, taken as a whole, lacks serious literary, artistic, political, or scientific value. . . .

(b) "Matter" means any book, magazine, newspaper, or other printed or written material, or any picture, drawing, photograph, motion picture, or other pictorial representation, or any statue or other figure, or any recording, transcription, or mechanical, chemical, or electrical reproduction, or any other article, equipment, machine, or material. "Matter" also means live or recorded telephone messages if transmitted, disseminated, or distributed as part of a commercial transaction.⁴⁶

In addition to obscene material, states are essentially free to regulate child pornography, and, as noted above, the federal government regulates child pornography, as well. California's child pornography provision is a relatively standard example, finding criminal liability for:

(a) Every person who knowingly sends or causes to be sent, or brings or causes to be brought, into this state for sale or distribution, or in this state possesses, prepares, publishes, produces, develops, duplicates, or prints any

44. *Miller v. California*, 413 U.S. 15, 23–24 (1973) (citing *Interstate Circuit, Inc. v. Dallas*, 390 U.S. 676, 704 (1968)).

45. *Id.* at 25 (citations omitted).

46. CAL. PENAL CODE § 311 (West 2009).

representation of information, data, or image, including, but not limited to, any film, filmstrip, photograph, negative, slide, photocopy, videotape, video laser disc, computer hardware, computer software, computer floppy disc, data storage media, CD-ROM, or computer-generated equipment or any other computer-generated image that contains or incorporates in any manner, any film or filmstrip, with intent to distribute or to exhibit to, or to exchange with, others, or who offers to distribute, distributes, or exhibits to, or exchanges with, others, any obscene matter, knowing that the matter depicts a person under the age of eighteen years personally engaging in or personally simulating sexual conduct.⁴⁷

3. *Regulations Restricting Children's Access to Protected Material Face a High Hurdle*

To date, two attempts to regulate the accessibility of sexual material on the Internet by children have been struck down on First Amendment grounds. In addition, numerous attempts to regulate the sale of violent video games to children have been struck down on First Amendment grounds. Consider first the attempts to regulate the accessibility of sexual material:

In *Ashcroft v. ACLU*, 542 U.S. 656 (2004), the Court ruled on Congress's second attempt to regulate minors' access to harmful material on the Internet. Congress's first attempt, the Communications Decency Act, was struck down in *Reno v. ACLU*, 521 U.S. 844 (1997). In response to this ruling, Congress enacted the Child Online Protection Act (COPA) in an effort to address the concerns articulated in *Reno* by forcing commercial vendors of pornographic Internet material to require a credit card for access to their sites. 47 U.S.C. § 231 (2000). . . . Congress apparently considered this requirement a less restrictive alternative to the provisions in the Communications Decency Act, which had imposed an outright prohibition on any online conveyance of harmful material to minors. Communications Decency Act of 1996, 47 U.S.C. § 223; *Ashcroft*, 542 U.S. at 661. Nonetheless, the *Ashcroft* Court still found the COPA unconstitutional on the grounds that it "was likely to burden some speech that is protected for adults" and that there were "plausible, less restrictive alternatives."⁴⁸

Under this "strict scrutiny" test, the Court requires that a law (a) be justified by a compelling governmental interest, (b) be narrowly tailored to achieve that

47. *Id.* § 311.1.

48. Patrick M. Garry, *A New First Amendment Model for Evaluating Content-Based Regulation of Internet Pornography: Revising the Strict Scrutiny Model to Better Reflect the Realities of the Modern Media Age*, 2007 BYU L. REV. 1595, 1595 n.1 (2007).

interest, and (c) be the least restrictive means of achieving the interest.⁴⁹ One commentator, Patrick M. Garry, has suggested that this result is inevitable as long as the Supreme Court continues applying a "strict scrutiny" test to all regulation of content:

The Court's majority opinion in *Ashcroft* is an excellent example of current First Amendment doctrine, which requires that any content-based regulation of speech—regardless of the actual burdens it imposes—be subjected to strict scrutiny by the courts. Under this approach, regulations like COPA almost never survive. As Gerald Gunther once put it, strict scrutiny is "'strict' in theory and fatal in fact."⁵⁰

If so, then virtual world content creators and providers—whether end users or virtual world producers—have at least some assurance that nonobscene adult-oriented material will remain free from regulation designed to prohibit access by minors for the foreseeable future.

Regarding graphically violent material, there have been numerous failed attempts to regulate the video game industry.⁵¹ These efforts typically involve prohibitions on the sale of graphically violent video games to minors⁵² or require labeling of those games in order to warn consumers.⁵³ Most recently, the courts analyzed a California law requiring a two-by-two-inch number "18" on the front of packaging and prohibiting sale or rental to anyone under eighteen-years-old of video games that met the following criteria:

(d) (1) "Violent video game" means a video game in which the range of options available to a player includes killing, maiming, dismembering, or sexually assaulting an image of a human being, if those acts are depicted in the game in a manner that does either of the following:

(A) Comes within all of the following descriptions:

49. See, e.g., *Sable Commc'ns v. FCC*, 492 U.S. 115, 126 (1989) (stating that content restrictions must promote a compelling government interest and be the least restrictive means of achieving that interest).

50. Garry, *supra* note 48, at 1596.

51. See, e.g., *Am. Amusement Mach. Ass'n v. Kendrick*, 244 F.3d 572, 580 (7th Cir. 2001) (granting video game manufacturers an injunction against city seeking to pass an ordinance limiting minor's access to violent games).

52. Several states have proposed legislation banning the sale of violent video games to minors. See, e.g., MICH. COMP. LAWS § 722.671 *et seq.* (2009); *id.* §§ 750.1–750.568; S. 249, 93d Leg., Reg. Sess. (Mich. 2005).

53. See *Video Software Dealers Ass'n v. Schwarzenegger*, 556 F.3d 950, 952 (9th Cir. 2009) (striking down a California statute which imposed restrictions and a labeling requirement on the sale or rental of "violent video games" to minors).

(i) A reasonable person, considering the game as a whole, would find appeals to a deviant or morbid interest of minors.

(ii) It is patently offensive to prevailing standards in the community as to what is suitable for minors.

(iii) It causes the game, as a whole, to lack serious literary, artistic, political, or scientific value for minors.

(B) Enables the player to virtually inflict serious injury upon images of human beings or characters with substantially human characteristics in a manner which is especially heinous, cruel, or depraved in that it involves torture or serious physical abuse to the victim.⁵⁴

A three-judge panel of the United States Court of Appeals for the Ninth Circuit analyzed the law as follows:

Applying strict scrutiny, we hold that the Act violates rights protected by the First Amendment because the State has not demonstrated a compelling interest, has not tailored the restriction to its alleged compelling interest, and there exist less-restrictive means that would further the State's expressed interests. Additionally, we hold that the Act's labeling requirement is unconstitutionally compelled speech under the First Amendment because it does not require the disclosure of purely factual information; but compels the carrying of the State's controversial opinion.⁵⁵

In spite of legislatures' utter lack of success in regulating violent video games in light of challenges to the constitutionality of these laws, new bills are introduced each year.⁵⁶

Going forward, virtual world and video game providers and virtual world users undoubtedly will continue to produce graphically sexual and violent adult content, and at the same time, legislatures undoubtedly will continue efforts to regulate this content for the protection of children.

As noted above, efforts to regulate obscenity and child pornography have succeeded, but to date, efforts to regulate violence and non-obscene adult content have failed. As increases in graphical processing power and bandwidth allow ever closer to photo-realistic depictions of graphical material that is arguably unsuitable for children, legislatures and courts will have to balance the

54. CAL. CIVIL CODE § 1746–1746.5 (2009 West), available at <http://law.justia.com/california/codes/civ/1746-1746.5.html>.

55. Video Software Dealers Ass'n, 556 F.3d at 953.

56. See, e.g., H.B. 353, 2009 Leg., Reg. Sess. (Utah 2009) (linking to recent Utah legislation attempting to regulate violent video games, which was vetoed by the Governor), available at <http://le.utah.gov/~2009/htmldoc/hbillhtm/HB0353.htm>.

apparent increased risk of exposure to this material with preservation of the value of these spaces for children, as noted below.

4. *Realism Vitiates Defenses Arguing that Content is not "Real"*

Although prohibitions against obscene materials and child pornography are broad, whether these laws can be applied to purely fictional content such as computer-generated avatars with childlike appearances that appear in virtual worlds is a nuance that is worth exploration.

In a key decision that is likely to be appealed, the United States Court of Appeals for the Fourth Circuit recently held that "obscene matter" need not be photographic or involve real human beings.⁵⁷ Defendant Whorley "was convicted of . . . knowingly receiving on a computer 20 obscene Japanese anime cartoons depicting minors engaging in sexually explicit conduct, in violation of 18 U.S.C. § 1462 . . ."⁵⁸

Although Whorley claimed that 18 U.S.C. § 1462⁵⁹ was unconstitutional because, among other reasons, "cartoon figures are not depictions of *actual* people,"⁶⁰ the court held that "the clear language of § 1466A(a)(1) and § 1466A(c) is sufficiently broad to prohibit receipt of obscene cartoons."⁶¹

If *Whorley* survives appeal, future prosecutions could target computer-generated content such as that found in virtual worlds depicting simulated minors engaged in simulated sexual activity.

5. *User-Generated Content Makes Virtual Worlds "Places," not "Works"*

As developer-produced content is supplanted by user-generated content, it becomes inappropriate to assess whether a virtual world is itself obscene or explicit. Rather, it is only the content within these worlds that can be defined as such. The distinction between content and world is not apparent in the

57. *See* United States v. Whorley, 550 F.3d 326, 336 (4th Cir. 2008) ("While § 1466A(a)(1) would clearly prohibit an obscene photographic depiction of an actual minor engaging in sexually explicit conduct, it also criminalizes receipt of 'a visual depiction of any kind, including a drawing, cartoon, sculpture, or painting,' that 'depicts a minor engaging in sexually explicit conduct' and is obscene." (quoting 18 U.S.C. § 1466A (2006))).

58. *Id.* at 330.

59. *See* 18 U.S.C. § 1462 (2006) (regulating importation or transportation of obscene matters).

60. *Id.* at 335.

61. *Id.* at 336.

regulation of computer games like *Grand Theft Auto*, even if they were to take place online with many players, because the content comes from the game developer. However, in light of the *Miller* test, it would be inappropriate to ask whether a reasonable person would find that *Second Life*, taken as a whole, lacks serious literary, artistic, political, or scientific value,⁶² just as it would be inappropriate to ask the question about a museum. Some activities in *Second Life* clearly possess such value, just as some exhibits in a museum do. However, certain user-created works may be offensive and lack redeeming value. In such cases, accusations of obscenity would need to be leveled against the particular content, not against *Second Life* itself, or a museum.

Our argument for taking virtual worlds as places, rather than works, may be seen as a faint echo of much stronger arguments for virtual worlds as sovereign territories, legal jurisdictions, or even as a basis for nonterritorially-based law, as discussed by David Post and David Johnson.⁶³ While such arguments are tantalizing, we take a much more modest position. In fact, we do not address issues of sovereignty or jurisdiction at all; instead, we merely use the notion of place to interpret terms coming from United States law that we do not dispute should likely apply to virtual-world activities involving United States citizens or occurring on a platform owned or operated by businesses with sufficient ties to the United States.

6. *User-Generated Content, Social Interaction and Environmental and Economic Integration Affect the Definition of "Community"*

If a virtual world is a place, why can it not also be a community, and thus form the basis of community standards? "Community" is not easy to define in online environments. Even prior to the emergence of 3D environments, online communities, such as chat rooms and message boards (offering semi-anonymity and the opportunity for role-playing with other people), attracted users seeking nonmainstream sexual experiences. Virtual worlds, particularly virtual worlds with unfettered content creation, also appeal to otherwise marginalized groups, including groups of people who use the spaces to role-play nonmainstream sexual practices with other users. In fact, some users have devoted entire

62. *Miller v. California*, 413 U.S. 15, 24 (1973).

63. See David G. Post & David R. Johnson, *The Great Debate—Law in the Virtual World*, FIRST MONDAY, Feb. 6, 2006, <http://firstmonday.org/htbin/cgiwrap/bin/ojs/index.php/fm/article/view/1311/1231> (last visited Sept. 29, 2009) ("Thinking about cyberspace communities as potentially separate law-making and law-enforcing places is a clarifying conceptual move.") (on file with the Washington and Lee Law Review).

sections of these worlds to their preferred nonmainstream practices.⁶⁴ This, of course, raises a question, because what is perfectly acceptable to a "community" in one of these areas in a virtual world may well not be acceptable if displayed on a public terminal in a library in rural America.

The federal government attempted to address this concern with the Communications Decency Act. Although portions of the Act relating to "indecent" material have been struck down, the Supreme Court has held that "[t]ransmitting obscenity and child pornography, whether via the Internet or other means, is . . . illegal under federal law."⁶⁵ Under this Act, it is a crime to use a computer to send or receive obscene materials.⁶⁶

This leaves open, however, a question as to what "community standard" should be applied. *Nitke v. Ashcroft*⁶⁷ attempted to clarify this question.⁶⁸ Nitke, a photographer, along with the National Coalition for Sexual Freedom (NCSF), argued that the Supreme Court's *Miller* decision and its progeny that define obscenity according to community standards, if applied to the Internet (where restriction of material by geography is difficult, if not impossible), violates the First Amendment because it holds people posting material online to the standard of the most restrictive community in the country, rather than their own, and thus chills otherwise protected speech.⁶⁹

A three judge panel of the United States District Court for the Southern District of New York found that Nitke and the NCSF had presented insufficient evidence that the variation in community standards is substantial enough to chill speech, and thus violate the First Amendment,⁷⁰ and the Supreme Court

64. See TOM BOELLSTORFF, *COMING OF AGE IN SECOND LIFE: AN ANTHROPOLOGIST EXPLORES THE VIRTUALLY HUMAN* 161–62 (2008) (describing users who find the opportunity for non-mainstream practices in *Second Life*).

65. *Reno v. ACLU*, 521 U.S. 844, 878 (1998).

66. See 18 U.S.C. §§ 1461, 1462, 1465 (criminalizing computer transactions involving obscene matter).

67. See *Nitke v. Ashcroft*, 253 F. Supp. 2d 587, 611 (S.D.N.Y. 2003) (holding that the Communications Decency Act was not unconstitutionally vague).

68. See *id.* at 603 ("While the community standards test was developed at a time when obscenity prosecutions were primarily local . . . online distribution is by definition nationwide.") (internal citations omitted).

69. See *id.* at 584 ("The plaintiffs assert in their Complaint that § 223(a)(1)(B) is facially overbroad and unconstitutionally vague because its use of the Miller test to define obscenity necessitates that Internet content providers all over the country tailor their materials to the standards of the most restrictive locality.").

70. See *Nitke v. Gonzales*, 413 F. Supp. 2d 262, 273 ("For the foregoing reasons, we conclude that the plaintiffs have not met their burden of proof with respect to the only claim remaining in this action, their overbreadth challenge to the CDA.").

affirmed that ruling without opinion.⁷¹ Thus, though the possibility remains that the argument set forth in *Nitke* could prevail in a similar case if presenting different evidence, online content providers, including those running and participating in virtual worlds, must carefully consider their obligations under Federal obscenity law.

Compounding these concerns is the fact that the precise community at issue in any given case is a question of fact and not of law—that is, it is a question that must be decided by the fact-finder (typically a jury) on a case-by-case basis.⁷² As time passes, more and more potential jurors will see the Internet as a collection of communities, but we suspect that an average jury will, for the foreseeable future, tend to view its local, real-world community standards as the standards that ought to be applied.

Attorneys arguing these cases should consider putting forth definitions that allow for a community standard to emerge based on the existence of online communities. Online social networks, user-generated content, and environmental interactivity all have the potential to force new definitions of community by defining the virtual world venue as its own local community. One might define a real-world community as a geographic area that provides its residents with their primary opportunities for social and economic interactions. All citizens within a community have an interest in upholding their community standards because they will be affected (albeit indirectly) by the behavior of the adults around them, and the education and upbringing provided to the children in their area. There is a valid parallel online.

For many people, *Second Life* may already meet the definition of their community. The most striking examples may include the thousands of people with disabilities who are unable to interact with the people who live near them in the real world because physical or social impairments make it impossible for them to leave their houses. Many of these people spend the bulk of their waking hours in *Second Life*.⁷³ In *Second Life*, "residents" use the affordances of user-generated content to build villages that are geographically contiguous,

71. See *Nitke v. Gonzales*, 547 U.S. 1015, 1015 (2006) ("On appeal from the United States District Court for the Southern District of New York. Judgment affirmed.").

72. See *Nitke*, 413 F. Supp. 2d at 265 ("Thus, whether material appeals to the prurient interest and is patently offensive are questions of fact that depend on a particular community's standards.").

73. See Daniel Terdiman, *Second Life Teaches Life Lessons*, WIRED, Apr. 6, 2005, <http://www.wired.com/gaming/gamingreviews/news/2005/04/67142> (last visited Sept. 29, 2009) ("Another project, called live2give, was undertaken by nine adults with cerebral palsy, and seeks to provide a forum in which they can share in the everyday personal interactions that most people take for granted.") (on file with the Washington and Lee Law Review).

complete with their own quasi-governmental structures.⁷⁴ They use extensive social networking tools to make their villages places where they have access to—and can create—a vibrant culture of artistic and intellectual pursuits.⁷⁵ Economic integration allows them to find paying jobs as part of a "knowledge economy."

Such an argument may seem unlikely to succeed given the present state of virtual world technology. However, increases in environmental integration push the argument one step further. It is not hard to envision actions taken in one *Second Life* resident's real-life home creating an effect in another resident's real-life home, mediated through *Second Life*. For example, resident *A* could tell resident *B* that her thermostat was turned down too low, and resident *B* could adjust the temperature in *A*'s real-life home. Once this type of interaction becomes far more frequent than interactions between resident *A* and her real-life neighbors, it seems less appropriate to condition the definition of community on real-world geographic proximity.

B. Sexual Exploitation of Children

1. Social Interactivity Raises the Risk of Child Exploitation

Another trend in virtual worlds and multiuser video games involves increasing access to tools for real-time communication, enabling a largely unmonitored communications path between online sexual predators and potential victims. This trend is both a technological and social one.

Until recently, limitations in bandwidth and hardware made real-time voice communication impossible in many virtual worlds and games. Now, real-time audio chat is incorporated into a wide array of products targeting both an adult and youth market, ranging from purely social spaces to purely game spaces.⁷⁶ Most home video game consoles now include voice chat as a core

74. See Confederation of Democratic Simulators, http://secondlife.wikia.com/wiki/Confederation_of_Democratic_Simulators (last visited Sept. 29, 2009) ("Among the goals for this project are: to enable ownership of high-quality public, private, and open-space land; create a themed yet expressive community of public and private builds; and implement novel democratic forms of self government within Second Life.") (on file with the Washington and Lee Law Review).

75. See Not Possible IRL, <http://npirl.blogspot.com/> (last visited Sept. 29, 2009) (linking to a blog that describes the artistic and intellectual pursuits of *Second Life* residents) (on file with the Washington and Lee Law Review).

76. See Research: KZERO, http://www.kzero.co.uk/blog/?page_id=2092 (last visited Sept. 29, 2009) (providing an overview of virtual world offerings) (on file with the Washington and Lee Law Review).

feature, and those that do not are likely to provide it soon.⁷⁷ There is no reason that real-time video chat will not also be incorporated as a base feature once bandwidth allows.

In addition to technological tools, widespread participation in "friend" networks and other social networking tools creates pressure to join these services and accumulate social relationships, resulting in seemingly approved connections to unknown and potentially dangerous persons.

Together, these trends create an environment that seems more conducive to exploitation of minors than that same environment would be absent these trends. There has already been one reported instance of attempted exploitation of a minor via a game console.⁷⁸

Child sexual exploitation and attempted exploitation via the Internet is, of course, widely prohibited by statutes such as this one, from Florida:

847.0135 Computer pornography; traveling to meet minor; penalties.

(3) CERTAIN USES OF COMPUTER SERVICES OR DEVICES PROHIBITED.—Any person who knowingly uses a computer online service, Internet service, local bulletin board service, or any other device capable of electronic data storage or transmission to:

(a) Seduce, solicit, lure, or entice, or attempt to seduce, solicit, lure, or entice, a child or another person believed by the person to be a child, to commit any illegal act described in chapter 794, chapter 800, or chapter 827, or to otherwise engage in any unlawful sexual conduct with a child or with another person believed by the person to be a child; or

(b) Solicit, lure, or entice, or attempt to solicit, lure, or entice a parent, legal guardian, or custodian of a child or a person believed to be a parent, legal guardian, or custodian of a child to consent to the participation of such child in any act described in chapter 794, chapter 800, or chapter 827, or to otherwise engage in any sexual conduct.⁷⁹

77. See Philip Levin, *98% of Wii Owners Want Online Voice Chat, According to New Poll*, Sept. 18, 2008, <http://wii.kombo.com/article.php?artid=10766> (last visited Sept. 29, 2009) ("Currently of all three next-generation home consoles, Nintendo Wii is the only one that does not support voice chat of some kind in its online games.") (on file with the Washington and Lee Law Review).

78. See Rosanna Ruiz, *Police: Ky. Man Got Humble Girl to Send Him Nude Photos*, CHRON., May 14, 2009, <http://www.chron.com/disp/story.mpl/front/6311073.html> (last visited Sept. 29, 2009) ("A Kentucky man is accused of persuading an 11-year-old Humble girl to send him nude photos of herself while the pair played video games online.") (on file with the Washington and Lee Law Review).

79. FLA. STAT. § 847.0135 (2009).

To the extent that these statutes do not include definitions that make them inapplicable to virtual worlds and games, they likely need no significant revision or expansion to apply to these spaces.

2. Physical and Environmental Integration Broaden the Definition of Child Sexual Exploitation

Virtual worlds are increasingly becoming interlinked with real-world content in a way that makes activity that takes place in a virtual world either mirror or control activity that takes place in the real world. This amplifies concerns regarding minors. No matter how damaging interaction with a predator online may be, it cannot compare to the potential damage caused by interactions with an enhanced sense of "presence," even if the contact remains, fundamentally, simulated.

The technology giving rise to these concerns is only just emerging, but it is real. Right now, technologists are focusing on integrating computer network data in virtual worlds. As IBM's David Levine describes it:

I think what we're going to see over time, frankly, is all sorts of visually rich things are going to be built in these environments because you can collaborate over them. So we've built things like visualizations of actual software structures. So for example, there are these huge, messy things called enterprise system busses, which are the gory details of how very large applications are bolted together. And data flows down them and connects various huge software components. And they're messy. They will have ten or 20 boxes worth of stuff. People cover their white-boards with them when they're trying to discuss them.

You build it as a 3D space and animate it with actual data that shows the traffic that flows over this thing. And all of the sudden the phrase "hot spot" becomes very visual. And all the sudden the notion of "that box that I can now point at and stand around is the one that's causing our performance problem" becomes very compelling.⁸⁰

That technology inevitably will enter the home market as well, allowing, for example, a user who remembers that he forgot to turn off the coffee pot to remotely log in to a virtual version of his real house from his office and turn it off by turning off its virtual counterpart.

80. David Levine, *Metanomics* Transcript (Mar. 3, 2008), <http://www.slideshare.net/WeAreRemedy/030308-david-levine-metanomics-transcript> (last visited Sept. 29, 2009) [hereinafter Levine Transcript] (on file with the Washington and Lee Law Review).

The question, of course, is: What level of interactivity is necessary for intrusions into these spaces to rise above simple computer crimes? For example, if someone were to hack into the virtual server room above and turn off the fans for all of the equipment, causing it to overheat and power off, has a real trespass been committed? What if the user were to log in to the virtual home with the coffee pot at 3:00 in the morning and flip the lights in a five-year-old child's room on and off?

Traditionally, crimes involving trespass to property and chattels require physical intrusion or touching,⁸¹ but the integration of virtual spaces with real-world spaces may render those laws ineffective.

Regarding minors, there seems great hidden danger in widespread integration between the real world and the virtual world.

Consider this: One obvious place for integration between the real and virtual world is a home entertainment system; it would be useful to be able to watch any of one's media library from a remote location by visiting one's virtual home. And, on the other hand, it would be useful to be able to display whatever content one desired in one's real home while logging in remotely to the virtual home. For example, a father could play a game with his children while away on business. One can even surmise that the existence of holographic projection technology will allow the father's avatar to be present in the real world, projected on to the couch next to his children. In fact, although in rudimentary form and priced well above consumer items, this technology does already exist.⁸² The danger, of course, arises if a user wishing to exploit children accesses them via this emerging technology. Unquestionably, there will be more risk regarding children when a projection of a person can appear in real space than when interaction is confined to a screen.

In addition to visual presence, the future will bring a physical connection between human beings and avatars that goes beyond the simple ability to control electronic and entertainment equipment outlined above. A vest originally designed for remote medical inspections of prisoners and elderly people is being developed for gaming, allowing players to feel "thumps" to their torso when they are hit by a weapon in an online game.⁸³ In the social

81. See RESTATEMENT (SECOND) OF TORTS § 217 (1965) (describing the methods of committing trespass to chattels, all involving physical intrusion).

82. See Victor Keegan, *Holograms: Coming Soon to Your Front Room?*, GUARDIAN, Feb. 26, 2009, <http://www.guardian.co.uk/technology/2009/feb/26/holograms> (last visited Sept. 29, 2009) (recounting the author's experience with hologram technology and noting its current high expense) (on file with the Washington and Lee Law Review).

83. See Conrad Quilty-Harper, *Medical Force Feedback Vest Tweaked for Gaming*, ENGADGET, Oct. 20, 2007, <http://www.engadget.com/2007/10/20/medical-force-feedback-vest-tweaked-for-gaming/> (last visited Sept. 29, 2009) ("Over at the E for All Expo, doctor Mark

realm, the early driver of technology that allows remote control of equipment that interacts with human beings is, of course, the adult toy industry.⁸⁴ As this technology becomes more common, it enhances the potential for damaging encounters between children and predators.

Obviously, the ability to display content in the real world, instantiate an avatar in the real world and physically interact with users in the real world while logged in remotely presents the potential for significant child safety concerns. Some of the concerns that arise in this Section are arguably addressed by current laws described herein prohibiting assault, distribution of pornography to minors, computer crime, and more, but it is not difficult to envision a situation that is not.

C. Economic Exploitation

1. Economic Integration Raises the Risk that Children Will Be Defrauded

Economic integration of virtual worlds, and the increasing value of virtual goods, makes it inevitable that sophisticated users will take advantage of children's naïveté via the commission of a wide range of financial crimes.⁸⁵ Although a full survey of the various state and federal laws prohibiting online fraud is beyond the scope of this article, many states, as well as the federal government, have already taken steps to specifically prohibit fraud committed by computer over the Internet.

By way of example, 18 U.S.C. § 1030(a)(4)⁸⁶ provides: "Whoever . . . knowingly and with intent to defraud, accesses a protected computer without authorization, or exceeds authorized access, and by means of such conduct furthers the intended fraud and obtains anything of value . . . shall be punished

Ombrellaro is demonstrating a medical feedback vest altered so that it works with video games. When an in-game character gets hit or shot, the gamer wearing the vest feels 'pneumatic thumps' to their torso." (on file with the Washington and Lee Law Review).

84. See Teledildonics, <http://en.wikipedia.org/wiki/Teledildonics> (last visited Sept. 29, 2009) ("Teledildonics (also known as 'cyberdildonics') are electronic sex toys that can be controlled by a computer Sex toys that can be manipulated remotely by another party are currently coming onto the market.") (on file with the Washington and Lee Law Review).

85. To an extent, there are fewer concerns about protecting children than adults with regard to the trend toward integration of real and virtual economies simply because the process of buying virtual currency generally provides an opportunity for the provider to verify the name and age of the participant (such as via a credit card) largely eliminating anonymity and greatly reducing the risk of underage access to adult content.

86. See 18 U.S.C.A. § 1030 (2009) (regulating fraudulent activity in connection with computers).

as provided in subsection (c)."⁸⁷ The complexity here in relation to video games and virtual worlds comes, as it does in many comparable state statutes, from the phrase "obtains anything of value." The Terms of Service for most games and virtual worlds deny the value of virtual items, land and currency within the game or world.⁸⁸ That may seem to end the inquiry, but in fact, there is no reason that it should. The Terms of Service are merely a contract between each user and the virtual world or game provider.⁸⁹ If the virtual currency underlying the fraudulent transaction has actual value that can be discerned, such as via a public marketplace in the virtual currency, whether or not authorized by the provider, it should not matter that the virtual world provider claims that the currency has no value. This seems particularly true if the provider profits from frauds that are committed using the virtual currency, such as by taking a percentage of the amount of currency upon its conversion to real dollars, as it then is incentivized to deny the value of the currency to the extent that denial enables further profitable, fraudulent activity.

Although many laws that currently exist already protect minors from online fraud and other financial crimes in virtual worlds and games with online currency that is tied to the real economy, the reluctance of prosecutors to embrace investigation of these crimes raises concerns about the implementation of these laws.

2. *Economic Integration Raises the Specter of Child Labor*

Most nations with developed economies have sweeping prohibitions on child labor, such as the United States Fair Labor Standards Act, which prohibits employment of children fifteen-years-old and younger in most jobs.⁹⁰

The integration of virtual- and real-world economies makes violations of such prohibitions seem inevitable. For example, Julian Dibbell has written extensively about the practice of "gold farming," which typically entails

87. See *id.* § 1030(a)(4) (linking to the Computer Fraud and Abuse Act), available at <http://www.usdoj.gov/criminal/cybercrime/ccmanual/01ccma.html#E>.

88. See, e.g., *World of Warcraft*, Terms of Use Agreement, <http://www.worldofwarcraft.com/legal/termsofuse.html> (last visited Sept. 29, 2009) ("[Y]ou may not sell in-game items or currency for "real" money, or exchange those items or currency for value outside of the Game.") (on file with the Washington and Lee Law Review).

89. See Joshua Fairfield, *Anti-Social Contracts: The Contractual Governance of Virtual Worlds*, 53 MCGILL L.J. 427, 427 (2008) ("This article seeks to demonstrate that contracts cannot, by their very nature, provide for all the legal needs of online communities.").

90. See 29 U.S.C. §§ 201–219 (2006) (providing the statutes collectively known as the Fair Labor Standards Act of 1938, part of which prohibits child labor).

extremely repetitive tasks that allow characters to acquire virtual goods and skills that can be transferred (either with or without the permission of the virtual world developer).⁹¹ It requires little stretch of the imagination to envision parents forcing their children to "play" in a virtual world in order to supplement income.

Workforce trends have begun to incorporate game-like features into work tasks. As Julian Dibbell described the possibilities in a 2007 appearance on the virtual world talk show, *Metanomics*:

[W]hat intrigues me is the notion that what if, instead of paying somebody in the third world to do this x-ray diagnosis, you redesigned it as a kind of videogame where you take--within the sort of science fiction virtual world, massively multi-player, online game, you have a sort of a crafting ladder where you specialize in pattern recognition or pattern analysis or whatever? And over and over again you do this tedious job of trying to pick out patterns in crazy images that are put before you. And once the system has established that you have a certain minimal level of proficiency at that then it starts dropping in the occasional actual x-ray, right? And it's designed so that just by playing the game you are doing the work of x-ray diagnosis. And suddenly, instead of paying somebody even very little money to do this work, you actually have people who will be doing it for free or even paying you for the fun of doing this work.⁹²

While this vision of "work as play" is an engaging one, it does raise concerns that children will be engaged in activities that would be prohibited by most child labor laws.

IV. Socially Redeeming Uses of Virtual Worlds

It is essential for legislators contemplating protection of children in these environments to distinguish the content of some virtual worlds from the important uses of virtual worlds as virtual places. Such a distinction is particularly important because regulations protecting children online have traditionally been borne of concerns regarding content, and these concerns must be weighed against the very real benefits to society of giving children the freedom to use virtual worlds and of allowing such worlds to develop in ways that will enhance their socially redeeming qualities.

91. See DIBBELL, *supra* note 26, at 2 (providing the author's account of her attempt to join the "global exchange of fictional goods for very real currencies . . .").

92. Julien Dibbell, *Metanomics* Transcript (Oct. 1, 2007), <http://www.slideshare.net/WeAreRemedy/100107-julien-dibbell-metanomics-transcript> (last visited Sept. 29, 2009) (on file with the Washington and Lee Law Review).

In this Section we discuss how the features of virtual worlds described in Part II enable laudable uses in three dimensions: work, education and engagement in cultural, social and civic affairs. Many of the following quotations are taken from interviews of leading organizations that are taking virtual worlds seriously. The interviews have been conducted by one of the authors of the present Article (Bloomfield) as part of the virtual world talk show, *Metanomics*.

A. Work

1. Distance Collaboration

One of the most obvious work-related uses of virtual worlds is to provide an environmentally-friendly, cost-effective way for people to interact and collaborate. The value of distance collaboration arises from a combination of three features described above: realism, social networking and user-generated content. Realism gives a sense of "a very real presence in a very real place,"⁹³ which allows people to feel that they are actually meeting with others—much more so than during a conference call.

IBM's Sandra Kearney, who was overseeing IBM's deep involvement in virtual worlds, described the role of the avatar as follows:

I often say—and I brief extremely senior folks in corporations—and I'll say it again, "Okay, just count the number of times you apologize when your avatar gets too close to another avatar or bumps into them." And it's funny you have that sensation. So there's that social space that we've respected, and all of a sudden, "Oh, I hear it. I just landed on their head. I'm sorry." But I'm thinking to myself, "But it's an avatar," right? So if it didn't feel social and if it didn't feel more like real life, you probably wouldn't react like that.⁹⁴

This basic point is emphasized by both Microsoft's Zain Naboulsi and Forterra's Robert Gehorsam.⁹⁵ They argue that virtual worlds provide a more personal experience than conference calls, webcasts and other less visual

93. Robert Bloomfield, SLEDcc 2008 Keynote, <http://www.slideshare.net/Metanomics/sle-dcc08-keynote-robert-bloomfield-presentation> (last visited Sept. 29, 2009) [hereinafter Bloomfield Keynote] (on file with the Washington and Lee Law Review).

94. IBM in the Metaverse: Sandra Kearney, <http://metanomics.net/show/archive092007> (last visited Sept. 29, 2009) (on file with the Washington and Lee Law Review).

95. See Robert Gehorsam, CEO, Forterra Systems: Tangible Evidence (Feb. 9, 2008), <http://metanomics.net/archive020909> (last visited Sept. 29, 2009) (linking to an interview with Robert Gehorsam) (on file with the Washington and Lee Law Review).

collaborative programs (like WebEx), at a comparable or lower cost, and are only slightly less personal than face-to-face meetings or high-quality videoconferencing, at a small fraction of the cost.

The combination of the realism and social networking are particularly beneficial, as IBM's experience with a recent conference bears out:

With an initial investment of roughly \$80,000, IBM estimates that they saved over \$250,000 in travel and venue costs and more than \$150,000 in additional productivity gains (since participants were already at their computers and could dive back into work immediately) for a total of \$320,000 saved (when compared to the potential expense if the event had been held in the physical world). . . .

The ability to see the others there and the sharing of an interesting space together did contribute to a feeling of attending an event in a different way than simply dialing into a large conference call.⁹⁶

The ability for users to generate their own content plays many important roles in distance collaboration. User-generated content allows users to create the types of spaces (e.g., formal lecture halls or informal social spaces) that best fit the goals of the conference, without the cooperation of the world developer. User-generated content also allows users to bring their subject matter into the virtual world, through not only traditional multimedia presentations, but also three-dimensional models that can represent anything from molecules⁹⁷ to financial market behavior⁹⁸ to the nature of innovation in the New Zealand Telecommunications Industry.⁹⁹

User-generated content also allows users tremendous flexibility in modifying their avatars. This additional element, combined with those mentioned above, provided an excellent way for members of Samsung's

96. *How Meeting in Second Life Transformed IBM's Technology Elite into Virtual World Believers*, <http://secondlifegrid.net./casestudies/IBM> (last visited Sept. 29, 2009) (on file with the Washington and Lee Law Review).

97. See Levine Transcript, *supra* note 80 (presenting Levine's discussion of three-dimensional modeling).

98. See Immersive Workspaces, *Metanomics* Transcript (Dec. 15, 2008), <http://www.slideshare.net/WeAreRemedy/121508-immersive-workspaces-metanomics-transcript> (last visited Sept. 29, 2009) (presenting a transcript of a video discussion between Robert Bloomfield and Justin Bovington, discussing the challenge to enterprise adoption of virtual worlds) (on file with the Washington and Lee Law Review).

99. See Ian Hughs, *Metanomics* Transcript (Mar. 2008), <http://www.slideshare.net/WeAreRemedy/030909-ian-hughes-metanomics-transcript> (last visited Sept. 29, 2009) (presenting a transcript of a video interview between Ian Hughes and Robert Bloomfield, discussing Ian's "move from intrapreneur to entrepreneur") (on file with the Washington and Lee Law Review).

California-based research group to interact with their Korean colleagues, as described by Victoria Coleman, Vice President of Samsung's Corporate Technology Organization:

We actually have a private island (in Second Life) that we have been using to communicate with our colleagues in Korea. I guess it was kind of interesting that we even went down that path because, typically in a large corporation like ours, people would just use teleconference, typically, to cross over the Pacific Ocean, in our case. However, in our company, this just doesn't work so well because most of our people in Korea actually have very, very poor command of English. So, for the most part, they're not comfortable participating in phone conversations. They feel inhibited and quite embarrassed by the quality of their English, so that is a big problem because we have very little—what's the word—unplanned interactions, serendipitous interactions, with these people.

We kind of gave up on using the phone, and then when we created our island, actually they suggested that we should hold our meetings in *Second Life*. We kind of cautiously agreed with them and started along the path, and it was quite interesting that the same Korean people, that were really reluctant to get on the phone and were very shy and wouldn't say anything, would show up in the Virtual World environment, decked out in completely fantastic outfits. They would be very sociable, very talkative. It was really like talking to a completely different set of people.¹⁰⁰

Finally, we note that virtual worlds allow for much richer communication than is possible in most real-life meetings or conferences. As an example, we use *Metanomics*, recognized as a leader in virtual conferences. Our philosophy is to pursue "constructive cacophony": The use of the multiple channels in an ordered way. As Bloomfield explained in his keynote address at the *Second Life* Educator's conference:

Once we have people in a [virtual] place, we want them to communicate. And boy, in virtual worlds, do they communicate. Public text chat. Private instant messages. Notices. Audio recordings. Video recordings. Public voice chat. Private voice chat. Gestures. Sound effects. Animation. Titles over our avatars' heads. . . . This cacophony can be overwhelming.

But think about this talk I am giving right now. Like so many conferences, one person has the floor, and the rest of you are sitting there silently. Some of you are actually listening, I hope. But I know that a lot of you are giving me only some of your attention. You might simply be distracted, thinking

100. Mapping Virtual Territory, *Metanomics* Transcript (Dec. 1, 2008), <http://www.slideshare.net/WeAreRemedy/120108-mapping-virtual-territory-metanomics-transcript> (last visited Sept. 29, 2009) (on file with the Washington and Lee Law Review).

about your own talk, or the flight back. Or you might still be thinking about something I said 5 minutes ago. You might have a question you are dying to ask.

All of those possibilities are wrapped in exactly the same package—total silence, except for the sound of my voice. . . . Virtual world conferences are totally different, which you can see by my own event series, *Metanomics* Like any conference, we still privilege a few people with the floor. They get to talk out loud. But everyone else is using a variety of text chat channels. People can ask questions of any speaker or another member of the audience, at any time, simply by typing into the local chat channel. Or people can comment on what was just said, or what was just typed.

Metanomics staff fills the chat channel with a running stream of supplementary material: Web links, quotations, and other facts—kind of like the ticker that crawls across the bottom of a cable news show, but with clickable links that will take you to web pages, pdfs, or even SLurls to transport you to another place in a virtual world. So it's a cacophony, and while you might not be paying attention to me and my guests, you are probably a lot less likely to be thinking about your travel plans, and much more likely to be engaged with the material at hand, which is far more important.¹⁰¹

2. *Economic Engagement and Accessibility*

The integration of virtual-world and real-world economies through currency exchange can provide economic opportunities to people who currently face challenges in accessing the global economy.

One benefit of economic integration lies in developing countries. Philip Rosedale, Founder and Chairman of Linden Lab, explains the opportunities this way:

I think that *Second Life* is just a phenomenal example of how you could take somebody, and you could put them on a level playing field, let them participate in what is today a million-dollar-a-day economy, and I believe that what we'll see is that somebody from a developing nation performs absolutely no differently from somebody in a developed nation when it comes down to many of the different kinds of jobs that you can do in *Second Life*. . . . I have this vision of an individual, an entrepreneur in a developing country, who serves as a point of currency exchange and a point of facilitation. Maybe a teacher that teaches people in their local

101. Bloomfield Keynote, *supra* note 93.

community how to use Second Life to educate themselves, make money, whatever, and then facilitates things like currency exchange, which are more complicated, and does that at a profit. So it's really a perpetuating system.¹⁰²

Regardless of location, people with disabilities often find economic opportunities to be inaccessible. *Second Life* is often far more workable for many. For example, consider the story of Alice Krueger, who has Multiple Sclerosis:

To get to my real life group meeting every month, I have to arrange para-transit. I spend an hour on a rattling old bus, to get to a place that is 20 minutes from my home. I am told when I will pick up the bus. I can't go when I want to. When I get to my real life support group meeting, then I have to figure out how to get into the building. It's not totally accessible where we're meeting. And then, after the meeting, I again have to catch the para-transit bus when they decide to pick me up, not on my schedule, and it's another hour rattling back.

In *Second Life*, to go to my monthly peer support group, I teleport, and there I am.¹⁰³

Naturally, virtual worlds provide many challenges to people with certain disabilities. However, Krueger's nonprofit organization, Virtual Ability, has made great strides, including provision of guide dogs for those with impaired vision, and voice-to-text simultaneous translation for those with impaired hearing, and a variety of other devices that improve the accessibility of virtual worlds to those with disabilities.¹⁰⁴

B. Education

To the extent that virtual worlds become an important tool for the workplace, educators must ensure that their students are familiar with the technology's opportunities and challenges. In fact, educators may be even better positioned than businesses to take advantages of virtual worlds. While

102. Rosedale's Vision, *Metanomics* Transcript (Sept. 9, 2009), <http://www.slideshare.net/WeAreRemedy/092908-rosedales-vision-metanomics-transcript> (last visited Sept. 29, 2009) (on file with the Washington and Lee Law Review).

103. Virtual Ability, *Metanomics* Transcript (Feb. 23, 2009), <http://www.slideshare.net/WeAreRemedy/022309-virtual-ability-metanomics-transcript> (last visited Sept. 29, 2009) (on file with the Washington and Lee Law Review).

104. See *Second Life* Disability Resources, http://virtualability.org/sl_resources.aspx (last visited Sept. 29, 2009) (describing the company's virtual support systems) (on file with the Washington and Lee Law Review).

business-related uses of virtual worlds are still in their infancy, Larry Johnson, CEO of New Media Consortium, testified to congress that:

More than any other aspect of virtual worlds, it is the ability of the technology to keep people's attention that is driving interest in virtual worlds within the education and training sectors, and that interest is widespread. Over the past two years, an estimated 4,000 educational projects have emerged within Second Life alone, and of the 13,400 regions in Second Life that were active at the time of this writing, more than 1,400 of them were being operated by bona fide educational institutions. Add to this more than a hundred other projects on open-source platforms like Project Wonderland, Qwak, and Croquet.¹⁰⁵

1. *Serious Games*

One attraction of virtual worlds is, perhaps surprisingly, their roots in gaming. While businesses typically strive to eliminate games in the workplace, educators have discovered that games can have very serious uses. As Clark Abt put it when he coined the term, "serious games . . . have an explicit and carefully thought-out educational purpose and are not intended to be played primarily for amusement. This does not mean that serious games are not, or should not be, entertaining. We reject the somewhat Calvinistic notion that serious and virtuous activities cannot be 'fun.'"¹⁰⁶

Serious games have been used in a wide variety of settings, including training for military, business and medical tasks.¹⁰⁷ In most uses, serious games benefit educators by posing challenges that can be accomplished only if the player learns the goals the educator wishes to emphasize. Auditors Ernst and Young is only one of the most recent successful examples of corporations using virtual worlds for on-the-(virtual)-job training.¹⁰⁸

105. See *Online Virtual Worlds: Applications and Avatars in a User-Generated Medium Before the Subcomm. On Telecommunications and the Internet of the Comm. On Energy and Commerce* (2009), available at <http://wp.nmc.org/mrpxel/> (testimony of Laurence F. Johnson, Ph.D., Chief Executive Officer, New Media Consortium) (providing Larry Johnson's testimony to the United States Congress) (on file with the Washington and Lee Law Review).

106. CLARK C. ABT, *SERIOUS GAMES* 9 (1970).

107. See Serious Games Institute, <http://www.seriousgamesinstitute.co.uk/Showcase/Default.aspx> (last visited Sept. 29, 2009) (showcasing various games used for training purposes) (on file with the Washington and Lee Law Review).

108. See Beth Ellyn Rosenthal, *Ernst & Young Uses Avatars to Test the Use of Virtual Worlds as a Way to Enhance Training for New Auditors*, *OUTSOURCING J.* (2009), <http://www.outsourcing-journal.com/mar2009-ac.html?email011369> (last visited Sept. 29, 2009) (describing auditing training on Ernst & Young's island in *Second Life*) (on file with the

2. User-Generated Content and Situative Learning

In addition to the arguments above, virtual worlds are particularly suited to an increasingly popular theory of education, "situative learning." Situative learning expands the educator's focus beyond the subject matter at hand, incorporating the environment in which learning takes place, and the behavioral and cognitive processes triggered by providing learners with a sense of "agency": The sense that they have some control over their learning environment.¹⁰⁹

Educator Peggy Sheehy uses this philosophy as she teaches middle school students about literature by having them create animated movies in *Second Life* based on American Literature.¹¹⁰

Barry Joseph, who works with underprivileged youth in after school programs, takes this philosophy even further, arguing that user-generated content allows students to recreate their identities: "In Pacman, you eat dots, and you avoid monsters. In Space Invaders, you shoot ships. In *Second Life*, to the extent it's a game, you build your self and the world around you, and the narrative is a blank slate created by those who came before you."¹¹¹ Nick Yee of PARC and Jeremy Bailensen of Stanford provide some rigorous scientific evidence that avatars can alter people's self impressions. In their studies, they show that taking on avatars of elderly people can reduce some manifestations of ageism, while having tall and attractive avatars can increase assertiveness—with both of these effects arising in real-world behavior, well after the virtual experience.¹¹²

Washington and Lee Law Review).

109. James Greeno, *The Situativity of Knowing, Learning, and Research* 53 AM. PSYCHOLOGIST 3, 5–26 (1998) (describing situative learning).

110. See The Virtual Chalkboard, *Metanomics* Transcript (July 28, 2008), <http://www.slideshare.net/WeAreRemedy/072808-the-virtual-chalkboard-metanomics-transcript> (last visited Sept. 29, 2009) ("[W]e created a 3D immersive experience where a visitor would actually enter the story and experience the story through audio and visuals and text.") (on file with the Washington and Lee Law Review).

111. Kids Building Digital Bridges, *Metanomics* Transcript (Jan. 26, 2009), <http://www.slideshare.net/WeAreRemedy/012609-kids-building-digital-bridges-metanomics-transcript> (last visited Sept. 29, 2009) (on file with the Washington and Lee Law Review).

112. See Virtually Social, *Metanomics* Transcript (Mar. 17, 2008), <http://www.slideshare.net/WeAreRemedy/031708-virtually-social-metanomics-transcript> (last visited Sept. 29, 2009) (discussing "how virtual environments effect the way we perceive ourselves and others") (on file with the Washington and Lee Law Review).

3. Economic Integration

The integration of virtual-world economies with real-world economies provides its own educational benefits. Just as experimental economists can use modest incentives to study business practice and policy, as well as fundamental economic theory,¹¹³ educators can use the modest stakes of virtual economies to give students hands-on business experience. While this learning could be structured in the form of serious games,¹¹⁴ educators could also allow students to interact with the economies that naturally arise in virtual worlds.

Naturally, these lessons would need to be constructed with great care. Caroline Bradley focuses on the largely unregulated securities markets in *Second Life* and other worlds, and concludes:

There is a danger that virtual securities markets may cultivate false expectations about real securities markets among player-inhabitants of a VW. Children are major consumers of computer games, and children may be particularly vulnerable to in game experiences and even propaganda. Children who have experienced "investing" on the Neopets Stock Market may end up thinking that real world securities markets are just another game.¹¹⁵

The positive side, of course, is that children may be involved in virtual stock market crashes and other scandals, which may give them very realistic lessons on how such markets actually operate. In fact, one of the authors of this Article (Bloomfield), has conducted extensive research in real and virtual financial markets, and found virtual stock markets to provide useful insights into the present financial market crisis facing global debt markets.¹¹⁶

Economic integration may be particularly useful in encouraging entrepreneurial behavior. Linda Applegate, of Harvard Business School,

113. See Vernon L. Smith, *Experimental Economics: Induced Value Theory*, 66 AM. ECON. REV. 274–79 (1976) (discussing the use of incentives to study economic theory).

114. See Robert J. Bloomfield, *Worlds for Study: Invitation—Virtual Worlds for Studying Real-World Business (and Law, and Politics, and Sociology, and . . .)* (Cornell University 2007, Working Paper), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=988984 ("Virtual worlds promise to be an excellent venue for research and education in business and related disciplines.").

115. Caroline Bradley, *Gaming the System: Virtual Worlds and the Securities Markets* (University of Miami Legal Studies Research Paper No. 2007-10, Working Paper), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1022441.

116. See *Metanomics Revisited*, *Metanomics Transcript* (Sept. 8, 2008), <http://www.slideshare.net/WeAreRemedy/092208-metanomics-revisited-metanomics-transcript> (last visited Sept. 29, 2009) (describing the various lessons learned from stock market experimentation in *Second Life*) (on file with the Washington and Lee Law Review).

defines entrepreneurship as "the relentless pursuit of opportunity, without regard to the resources currently controlled."¹¹⁷

Entrepreneurship in the real world normally takes so much time, capital and expertise that educational hands-on experience is impractical. However, the much lower demands of entrepreneurs in economies based on virtual production and micro-transactions make such endeavors possible, though still fraught with some degree of risk for the student, which may impose risk on the teacher.

C. Cultural, Civic and Social Engagement

1. Museums, Governments and Nonprofit Organizations

The same tools that make virtual worlds useful for the workplace and education are being exploited very effectively by a variety of nonprofit institutions that are crucial to culture, society and government. Attendance at virtual art museums in *Second Life* is growing rapidly, and museum curators are particularly excited by the length of the average stay: At forty minutes, visitor attention at the *Second Life* Dresden Art Gallery is far closer to that observed in the real-world museum (forty-five minutes), and orders of magnitudes "stickier" than on the web.¹¹⁸ Opportunities to create user-generated content allow virtual museum-goers to engage more actively with content, creating their own photographs, videos and 3D models.

Governmental bodies have found *Second Life* to be an effective venue for outreach; NASA has televised space shuttle launches in *Second Life* to a community of interested citizens.¹¹⁹ Hundreds of government agencies are now joining the Federal Consortium for Virtual Worlds, directed by Paulette Robinson of National Defense University,¹²⁰ while dozens of nonprofit

117. Robert Bloomfield, *Connecting the Dots: Edupreneurs*, http://www.matanomics.net/blog/connecting_the_dots_edupreneurs1 (last visited Sept. 29, 2009) (on file with the Washington and Lee Law Review).

118. See Wagner James Au, *Visitors to SL Art Gallery Stay As Long As RL Art Patrons*, <http://nwn.blogs.com/nwn/2009/02/dresdens-second-life-gallery-attracts-60000-yearly-visitors.html> (last visited Sept. 29, 2009) ("[A]verage visitor time in the gallery is 40 minutes—and that is on a par with the average museum and art gallery visit in the real world, which is 45 minutes.") (on file with the Washington and Lee Law Review).

119. See NASA STS-122 Shuttle Launch in *Second Life*, http://www.youtube.com/watch?v=ybD6Vsytw_o (last visited Sept. 29, 2009) (linking to a video of the *Second Life* shuttle launch) (on file with the Washington and Lee Law Review).

120. See The Federal Consortium For Virtual Worlds, <http://www.ndu.edu/IRMC/fcvw/fedconsortium.html> (last visited Sept. 29, 2009) ("The Federal Consortium for

organizations perform outreach through the Nonprofit Commons in *Second Life*.¹²¹

2. *Third Places*

Finally, virtual worlds can provide beneficial venues for social interaction that lack the intentional missions of governments and nonprofit organizations. Ray Oldenburg, in his book *The Great Good Place*, emphasized the importance of "third places."¹²² The "first place" is one's home, the "second place" is one's workplace, and "third places" provide opportunities to socialize with members of the community who are not family members or colleagues.¹²³ These informal social interactions have been declining in the United States, according to Robert Putnam, who argues that this decline saps the nation's social capital.¹²⁴ By providing cheap forms of self-entertainment, virtual worlds can serve as third places, even as people increasingly cocoon themselves in their homes.

3. *Dating*

In discussing our final socially beneficial role of virtual worlds, we return not far from where we started—sexual activity. Our Article, like any focusing on adult material and the protection of children, began by focusing on regulations governing explicit visual depictions of sexual acts. However, sex is an essential part of life, and our society has a vested interest in allowing our children to find appropriate partners, form lasting bonds and raise the children resulting from their sexual activities.

Virtual Worlds (FCVW) consists of members from government (federal, state & local, & international), academia, and corporate sectors." (on file with the Washington and Lee Law Review).

121. See NPSL: Nonprofits in *Second Life*, <http://nonprofitcommons.org/content/about-npsl> (last visited Sept. 29, 2009) ("We have a community of nonprofits in Second Life and hold regular weekly meetings every Friday from 8:30 to 10:00 a.m. PST.") (on file with the Washington and Lee Law Review).

122. See RAY OLDENBURG, *THE GREAT GOOD PLACE: CAFES, COFFEE SHOPS, COMMUNITY CENTERS, BEAUTY PARLORS, GENERAL STORES, BARS, HANGOUTS, AND HOW THEY GET YOU THROUGH THE DAY* 20 (1989) (describing the characteristics of third places).

123. *Id.*

124. See ROBERT D. PUTNAM, *BOWLING ALONE: THE COLLAPSE AND REVIVAL OF AMERICAN COMMUNITY* 19 (2000) ("Just as a screwdriver (physical capital) or a college education (human capital) can increase productivity (both individual and collective) so too social contacts affect the productivity of individuals and groups.").

As children spend more of their time in virtual worlds—for endeavors like work, education, and engagement with social, cultural and civic affairs—they are bound to find opportunities to develop romantic attachments that carry our society to the next generation. While more research surely is required, it is reassuring to learn from the only study on the topic we have uncovered that the very features of virtual worlds that make them useful for these endeavors also make them a more likely place to realistically assess and form an enduring relationship.¹²⁵ In the study, the researchers arranged for short blind dates to take place via simple text chat or a brief tour of a virtual museum. The results showed that those who "met" in the virtual museum were much better able to assess the extent to which they and their potential partner were a good fit. Not surprisingly, in light of our present analysis, the authors attribute the effect to the fact that virtual world interactions are much more similar to the face-to-face interactions that have formed the basis of romantic selection since far before the creation of the first MUD.

V. Conclusion

The very features of virtual worlds that require regulations protecting children also allow them to provide an environment that will be extremely important to society, and to citizens themselves as they strive to become productive and remunerated citizens who contribute to our culture. Children need to be given every opportunity to enter this venue. Thus, while regulators should be aware of the dangers to children posed by virtual worlds, and how the features of virtual worlds alter the interpretation of key terms in laws regarding obscenity and child exploitation, they also need to carefully consider the impact of regulation in light of the strong social benefits of this new technology. In fact, given that the majority of obscenity and exploitation law can be applied to virtual worlds with minimal modification, it may be more important for regulators to consider how to increase children's access to virtual worlds—by, for example, clarifying the virtual world implications of Section 508 regulations that require federal agencies to make their information technologies accessible to those with disabilities, promoting widespread

125. See Jeana Frost, Dan Ariely, and Michael I. Norton, *Improving Online Dating with Virtual Dates*, (HBS Marketing Research Paper No. 06-058, 2006), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=945389 ("In Study 3 we introduce the Virtual Date, on which potential dating partners explore a virtual environment in an interaction analogous to a real first date . . . , a pre-meeting intervention that led to greater liking after meetings had occurred (during speed-dates) than standard online dating.").

broadband internet access and funding advanced technology education—rather than seeking to limit it.¹²⁶

126. See Section 508: The Road to Accessibility, <http://www.section508.gov/index.cfm> (last visited Sept. 29, 2009) ("Section 508 was enacted to eliminate barriers in information technology, to make available new opportunities for people with disabilities, and to encourage development of technologies that will help achieve these goals.") (on file with the Washington and Lee Law Review).