

Article

Prepared by: Caroline Shaffer We
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As Data Overflows Online, Researchers Grapple with Ethics

VINDU GOEL

Learning Outcomes

After reading this article, you will be able to:

- Assess the controversial research known as the “Facebook emotion experiment.”
- Discuss the role of ethics in the manipulation of personal data on the Internet.
- Acknowledge the absence of adequate federal guidance for large-scale research on Internet users.

Scholars are exhilarated by the prospect of tapping into the vast troves of personal data collected by Facebook, Google, Amazon and a host of start-ups, which they say could transform social science research.

Once forced to conduct painstaking personal interviews with subjects, scientists can now sit at a screen and instantly play with the digital experiences of millions of Internet users. It's the frontier of social science—experiments on people who may never even know they are subjects of study, let alone explicitly consent.

“This is a new era,” said Jeffrey T. Hancock, a Cornell University professor of communication and information science. “I liken it a little bit to when chemistry got the microscope.”

User Experiments JULY 28

But the new era has brought some controversy with it. Professor Hancock was a co-author of the Facebook study in which the social network quietly manipulated the news feeds of nearly 700,000 people to learn how the changes affected their emotions. When the research was published in June, the outrage was immediate.

Now Professor Hancock and other university and researchers are grappling with how to create ethical guidelines for this kind of research. In his first interview since the book study was made public, Professor Hancock said he will help develop such guidelines by leading a series of discussions among academics, corporate researchers and government agencies like the National Science Foundation.

“As part of moving forward on this, we've got to have a conversation,” he said. “This is a giant societal conversation that has to take place.”

Scholars from M.I.T. and Stanford University are holding panels and conferences on the topic, and several academic journals are working on special issues devoted to ethical research.

Microsoft Research, a quasi-independent arm of the technology company, is a prominent voice in the conversation. It hosted a panel last month on the Facebook research with Professor Hancock and is offering a software tool to scholars to help them quickly survey consumers about the ethics of a project at its early stages.

The Federal Trade Commission, which regulates companies on issues like privacy and fair treatment of Internet users, is also planning to get involved. Although the agency declined to comment specifically on the Facebook study, the broader issue touches on principles important to the agency's chairwoman, Edith Ramirez.

“Consumers should be in the driver's seat when it comes to their data,” Ms. Ramirez said in an interview. “They don't want to be left in the dark and they don't want to be surprised when their data is used.”

Facebook, which has apologized for its experiment, declined to further comment, except to say, “We're talking with academics and industry about how to improve our research processes.”

Much of the research done by the Internet companies is in-house and aimed at product adjustments, like whether

prefer news articles or cat videos in their Facebook feeds or how to make Google's search results more accurate.

But bigger social questions are studied as well, often in partnership with academic institutions, and scientists are eager to conduct even more ambitious research.

The Facebook emotion experiment was in that vein. The brainchild of a company data scientist, Adam D. I. Kramer, but designed and analyzed with help from Professor Hancock and another academic researcher, Jamie E. Guillory, it was intended to shed light on how emotions spread through large populations. Facebook deliberately changed the number of positive and negative posts in the subjects' news feeds over a week in January 2012, then looked at how the changes affected the emotional tone of the users' subsequent Facebook posts.

In another well-known experiment, Facebook sent voting reminders to 61 million American users on Election Day in 2010. Some users also saw a list of their friends who said they had already voted, and the researchers found that the specific social nudge prompted more of those people to go to the polls. The study prompted some to suggest that Facebook had the power to sway election results.

Social scientists presented a message like this one to more than 60 million Facebook users during the 2010 Congressional elections.

Such testing raises fundamental questions. What types of experiments are so intrusive that they need prior consent or prompt disclosure after the fact? How do companies make sure that customers have a clear understanding of how their personal information might be used? Who even decides what the rules should be?

Existing federal rules governing research on human subjects, intended for medical research, generally require consent from those studied unless the potential for harm is minimal. But many social science scholars say the federal rules never contemplated large-scale research on Internet users and provide inadequate guidance for it.

For Internet projects conducted by university researchers, institutional review boards can be helpful in vetting projects. However, corporate researchers like those at Facebook don't face such formal reviews.

Sinan Aral, a professor at the Massachusetts Institute of Technology's Sloan School of Management who has conducted large-scale social experiments with several tech companies, said any new rules must be carefully formulated.

"We need to understand how to think about these rules without chilling the research that has the promise of moving us miles and miles ahead of where we are today in understanding human populations," he said. Professor Aral is planning a panel discussion on ethics at an M.I.T. conference on digital experimentation in October. (The professor also does some data analysis for The New York Times Company.)

Some scientists had been thinking about these issues for several years, but the discussions have boiled over since the Facebook experiment.

"It's the case study we're all talking about," said Lucy Bernholz, a visiting scholar at Stanford's Center on Philanthropy and Civil Society, who is organizing a conference in September on the ethics of digital data, including what limits should be placed on its use.

Mary L. Gray, a senior researcher at Microsoft Research and associate professor at Indiana University's Media School, who has worked extensively on ethics in social science, said that too often, researchers conducting digital experiments work in isolation with little outside guidance.

She and others at Microsoft Research spent the last two years setting up an ethics advisory committee and training program to provide guidance to researchers in the company's labs who are working with human subjects. She is now working with Professor Hancock to bring such thinking to the broader research world.

"If everyone knew the right thing to do, we would never have anyone hurt," she said. "We really don't have a place where we can have these conversations."

Dr. Gray advocates a simple litmus test for researchers: If you're afraid to ask your subjects for their permission to conduct the research, there's probably a deeper ethical issue that must be considered.

For Professor Hancock, solutions could include an opt-in process for projects that involve big changes in an Internet user's experience, and a debriefing system to inform users about smaller tests after the fact.

Companies won't willingly participate in anything that limits their ability to innovate quickly, he said, so any process has to be "effective, lightweight, quick, and accountable."

While some would say the risks of the Facebook study were obvious, Professor Hancock said the researchers didn't realize that manipulating the news feed, even modestly, would make some people feel violated.

He learned otherwise from hundreds of anguished and angry e-mails he received after the work was published. "They said, 'You can't mess with my emotions. It's like messing with me. It's mind control.'"

Critical Thinking

1. Is Professor Jeffrey T. Hancock's likening of this "new era" to "when chemistry got the microscope" a valid metaphor? Why or why not?
2. How much of a concern should it be that Facebook may have the power to sway election results?
3. Does Professor Hancock's contention that the researchers did not realize that manipulating the news feed would make people feel violated help to remove at least some of the researchers' culpability? Explain.

Article

Prepared by: Caroline Shaffer Westerhof,
California National University for Advanced Studies

Wireless Charging, at a Distance, Moves Forward for uBeam

NICK BILTON

Learning Outcomes

After reading this article, you will be able to:

- Identify ultrasound as the key technology for uBeam's wireless power system.
- Describe the remarkably thin physical characteristics of the uBeam charging stations.
- Define the so-called Internet of Things, which could be facilitated via uBeam's technology.

When Meredith Perry, 25, started studying astrophysics at the University of Pennsylvania, her career goal was to eventually find life on other planets. Instead, Ms. Perry accidentally stumbled upon something even more exciting: the ability to charge portable electronics, like cellphones and laptops, wirelessly using ultrasound.

To do this, Ms. Perry created a technology that can take electricity, convert it into sound and send that audio through the air over ultrasound. Then a receiver attached to a portable electronic device catches the sound and converts it back into electricity.

The technology makes it possible for a device to move freely around a room, in a pocket or purse, while constantly charging.

Ms. Perry's company, uBeam, announced on Wednesday that it took an early prototype concept of this technology, first developed for Ms. Perry's college innovation competition, and turned it into a fully functional prototype that the company now plans to build for consumers.

"This is the only wireless power system that allows you to be on your phone and moving around a room freely while your device is charging," Ms. Perry said in an interview. "It allows for a Wi-Fi-like experience of charging; with everything else you have to be in close range of a transmitter."

The uBeam charging stations will be thin, measuring no more than 5 millimeters thick. These transmitters could be tacked to walls like wallpaper or made into decorative art to beam electricity to devices. Smartphones and laptops could then be equipped with thin receivers able to convert audio and charge the devices.

The technology could also bring significant changes to how devices are designed: Gadgets that work with uBeam could have thinner batteries and constantly receive power. Battery technology has barely changed over the last few decades, with device makers relying on incremental improvements to battery power, in combination with more energy-efficient electronics.

"If wireless power is everywhere, then the size of your battery can shrink because it's always charging," Ms. Perry said. "You'll never need a cord again, and you won't need international charging adapters."

The uBeam products will be on store shelves within the next two years, the company said. Ms. Perry said that the company planned to make two different charging products at first. One will be built for smaller rooms, like homes and offices, and the other, for much larger uBeam chargers, will be industrial-size for stadiums, airports, hotels, conference halls and music venues.

The company also announced Wednesday that it had stumbled upon the ability to be able to send highly secure data through its charging stations. This means that uBeam's technology could be used for the so-called Internet of Things, where everyday objects are capable of communicating over the Internet.

The uBeam charging capabilities do have some serious limitations, including the power transmitters' inability to beam through walls. This means that unlike Wi-Fi hotspots, where a single device can transmit Internet to an entire house or small office, uBeam users would have to buy transmitters for each room.

There is also the question of adoption. Short-range wireless battery charging technology has been around for years, yet

people have been slow to add it to their home or office. But uBeam says that will change because its technology can transmit farther distances, and because the company expects to have the transmitters in many places that people visit.

"We're going to sell directly to consumers, and we'll sell them to restaurant chains and hotels—we are going to saturate the market with uBeam transmitters," Ms. Perry said. "In addition to your local coffee shop saying it has free Wi-Fi, it will also say it has free uBeam."

The company is filing 18 patents related to wireless charging and ultrasound with the United States Patent and Trademark Office. It is also in the process of closing a Series A round of financing, in addition to an earlier \$1.7 million seed round from Marissa Mayer, Yahoo's chief executive; Founders Fund; and Andreessen Horowitz.

Critical Thinking

1. What devices are likely to undergo the most significant changes in design due to wireless charging?

2. With the astonishing innovations in electronics over the decades, why is it that battery technology has barely changed during that time?
3. Given that short-range wireless battery charging has been around for years, why have people been slow to adopt it at home or office?

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Article

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The Secret Life of Data in the Year 2020

A futurist for Intel shows how geotags, sensor outputs, and big data are changing the future. He argues that we need a better understanding of our relationship with the data we produce in order to build the future we want.

BRIAN DAVID JOHNSON

Learning Outcomes

After reading this article, you will be able to:

- Understand the concept of “big data.”
- Understand both the risks and rewards of big data.

My job as Intel’s futurist is to look 10 to 15 years out and model how people will act and interact with devices in the future. I explore a vision for all computational devices. Basically if it has a chip in it, it’s within my view. The driving force behind this work is incredibly pragmatic. The process of designing, developing, manufacturing, and deploying our platforms takes around 10 years. It’s of vital business importance today for Intel to understand the landscape a decade from now. That’s why in 2010 we started work on 2020.

When you look to 2020 and beyond, you can’t escape big data. Big data—extremely large sets of data related to consumer behavior, social network posts, geotagging, sensor outputs, and more—is a big problem. Intel is at the forefront of the big data revolution and all the challenges therein. Our processors are how data gets from one place to another. If anyone should have insight into how to make data do things we want it to do, make it work for the future, it should be Intel.

That’s where I come in. I model what it will feel like to be a human 10 years from now. I build models that explore what it will feel like to experience big data as an average person. An integral part of this work is collaborating with Genevieve Bell.

She’s an Intel fellow, a cultural anthropologist by training, and one of the best minds working in this area. Together, we’ve been exploring 2020 through the lens of what we call “the Secret Life of Data.”

For most people in 2020, it will feel like data has a life of its own. With the massive amount of sensors we have littering our lives and landscapes, we’ll have information spewing from everywhere. Our cars, our buildings, and even our bodies will expel an exhaust of data, information, and 1s and 0s at an incredible volume.

Why will most people think that their data has a life of its own? Well, because it’s true. We will have algorithms talking to algorithms, machines talking to machines, machines talking to algorithms, sensors and cameras gathering data, and computational power crunching through that data, then handing it off to more algorithms and machines. It will be a rich and secret life separate from us and for me incredibly fascinating.

But as we begin to build the Secret Life of Data, we must always remember that data is meaningless all by itself. The 1s and 0s are useless and meaningless on their own. Data is only useful and indeed powerful when it comes into contact with people.

This brings up some interesting questions and fascinating problems to be solved from an engineering standpoint. When we are architecting these algorithms, when we are designing these systems, how do we make sure they have an understanding of what it means to be human? The people writing these algorithms must have an understanding of what people will do with that data. How will it fit into their lives? How will it affect their daily routine? How will it make their lives better?

The Mysterious Resident of Glencoe and Wren Roads

At Intel, solving the problem of how data will interact with other data in the future is not an esoteric pursuit. When I talk about making people's lives better and having a deep understanding of how data will make their lives better, I'm not speaking in the abstract. I work with the people who are writing those algorithms and the people building the systems. Take Rita, for instance, who just had a baby last year. Rita did an experiment recently that will show you exactly what I mean when I say that algorithms need to understand people.

To test out this approach, Rita developed a prototype and programmed a personal tracking system. She allowed her smartphone to track and record all of her movements throughout her day. She wanted to test how the software understood who she was and what she did with her day.

After allowing her device and the software to track her every movement for a month, she checked out the report. The initial findings of the sensors and algorithms had learned some very specific information about her. The system told her that she "lived" in three primary places. The first location was spot on. It showed that she lived in her own home. It even showed the location on a map. Okay, that was right.

Second, it reported that she lived on the Jones Farm Campus of Intel. Okay, that was correct, as well. Rita spends most of her time at work when she's not at home. But the third data point really enraged Rita.

The third data point showed that Rita lived at the intersection of Glencoe and Wren roads. This really made her mad. I didn't completely understand. I asked why. She showed me on the map.

"There's nothing at Glencoe and Wren," she said. It's a stop sign in the middle of nowhere. All it had to do is look at any mapping program and it would show nothing there. How could I live there if there is no building there? It's ridiculous. We need to program these things to understand what it really means to be human. Just because I stopped in this place twice a day on my way to and from work doesn't mean I live there. It's so simple to fix. We just have to understand how people really live and not base it on just data points. People are the most important data points."

That really is my challenge: How do we come up with the requirements and problems to build into the 2020 platform? The Secret Life of Data research and development work I've been doing with Genevieve Bell tells us that one approach is to start looking at data as if it were a person.

The Algorithm: More Human Than a Human?

In the era of big data, how do we make sense of all this massive amount of information? We need new ways of conceptualizing

and thinking about data that is not the traditional bin that we have taken for the last 50 years.

If we begin to think of data as having a life of its own, we are programming systems to enable them to have a life. Then ultimately we are designing this data and the algorithms that process it to be human. One approach is to think about data as having responsibilities.

When I say responsibilities, I'm not just talking about the responsibility to keep the data safe and secure, but also the responsibility to deliver the data in the right context and tell the story right. It's akin to making sure that a person understands your family history, the subtle nuances of your life, and grandmother and great-grandmother. It is the responsibility of history, and it cannot be taken lightly.

The research and development that Bell and I have been doing explores what is the only way to make sense of all this complex information—by viewing data, massive data sets, as the algorithms that really utilize big data as being human. Data doesn't spring full formed from nowhere. Data is created, generated, and recorded. And the unifying principle behind this data is that it was all created by humans. We create data, so essentially our data is an extension of ourselves, a reflection of our humanity.

Ultimately in these systems, our data will need to start interacting with other data and devices. There will be so much data and so many devices that our data will need to take on a life of its own just to be efficient and not drive us crazy. But these systems understand and examine who we and our data are in the complex reality of big data that is basically too complex for us to understand? This is where science fiction, androgynous Philip K. Dick and William Gibson come in.

Science Fiction and the Literary Origins of Android Data

In 1969, Philip K. Dick wrote the novel *Do Androids Dream of Electric Sheep?* The book is a meditation on what it means to be human and how the lines between that humanity and machines can become hazy—if not completely impossible to detect. The book eventually was developed into the science fiction movie masterpiece *Blade Runner* by director Ridley Scott.

Just a few years after writing *Androids*, Dick further developed his ideas about humanity and the constructs that we have created. He gave a speech called "The Android and the Human" at the University of British Columbia in February 1972, where he explored his new way of thinking: "I have, in some of my books and novels, written about androids or robots or simulacra. The name doesn't matter; what is meant is artificial constructs masquerading as humans. . . . Now, to me, that theme is obsolete. The constructs do not mimic humans; they are, in deep ways, actually human already."

Thirty-six years later, another science-fiction legend, William Gibson, gave a speech at the Vancouver Institute called “Googling the Cyborg.” Gibson is best known for popularizing the cyberpunk movement in books like *Neuromancer* (Ace, 1984) and *Pattern Recognition* (Putnam, 2003). In his speech, Gibson contemplated what it means to be a cyborg. He had a good time poking fun at popular culture’s images of the man-machine hybrid with its carnal jacks, and he challenged his audience to think of the cyborg in a different way.

Gibson said he believes that the human and machine union has already happened, and it is called the Internet. He sees the Internet as “the largest man-made object on the planet” and says that the “real-deal cyborg will be deeper and more subtle and exist increasingly at the particle level.”

Gibson’s coupling of our humanity and the humanity of our data gives us another image of our constructs. We produce data and we write algorithms, and when we do this at the increasing scale (which will be coming in the next decade), we will need to begin to imagine who we are and who our data and our algorithms might be in a very different light.

The Android Is Your Data

Using these science-fiction visions, we can begin to develop a way to conceptualize the data. From the view of this narrative, our data—the data we created—becomes a kind of simulacrum of ourselves. Like Philip K. Dick’s androids and William Gibson’s cyborgs, data becomes a way to embody who we are, but at the same time it remains external. It allows us to examine who we are and also what we want to do with these systems. As we begin to architect these systems, often the reality is too hard to handle: It’s too complex for us to make any meaningful design decisions. We need these representations, these androids, to be our proxies.

By thinking about data, large data sets, and the algorithms that make use of this information as human—or, in Dick’s language, androids—we are giving these complex systems a kind of narrative and characteristics that help programmers, system architects, and even regular folks to understand data’s “bigness.”

To understand what we want from the algorithms, these systems become less complex because we can understand them not only as an extension of ourselves but also a collection of human entities. If we understand them as human, then we know how to talk to them. We know how to ask for things. We know what to expect. We can hold them responsible, and we can even have an understanding for how far we can trust them.

But this humanness doesn’t really look like the humanness of Dick or even Gibson. This humanness is not trying to trick us into thinking that it is human like us, and it doesn’t exist on the particle level. Today, our understanding of humanity and intelligence is being challenged. Every year we get new products

with increasing intelligence. These range from the amazing to the downright funny, but the reality of these systems looks more like a Furby toy having a conversation with the iPhone’s Siri service than two superhuman androids having a chat.

This concept of humanity is more about our relationships to other people, other pieces of data, and the complex web of relationships that make up our very culture. Humanity shouldn’t really be defined by Alan Turing’s test (designed to fool a person into thinking an AI was a human over teletype) or even Dick’s Voight-Kampff empathy test. How we define humanity is by our relationship to others—the connections we have to other people and their data.

And one day, humanity may be defined by how our personal data interacts with and is connected to other people’s data. We have to come to grips with the idea that this interconnected humanness that moves from data to data, algorithm to algorithm, might happen without us knowing anything about it. It very well could happen in the Secret Life of Data.

Do Algorithms Dream of Electric Sheep?

I think that there is something lovely about the idea that our data could have a life of its own. For too long, computers, computational power, and even software have been thought of as cold mathematical pursuits. In reality, the digital world is simply an extension of our world. Data and computational power are, at their core, human. With Genevieve Bell, these new models have given us a way to architect a future that is both more efficient and more human. And I think that’s awesome.

To answer the question “Do algorithms dream of electric sheep?” becomes complicated. First we can say “Yes,” because we programmed them to do so. Next we could say “No,” because the complex neurological structures of the human dream state will not be modeled in algorithms or software anytime soon. But finally, we might need to say “Maybe,” and we will just have to wait and ask them.

These questions of how we interact with data, and how data interacts with itself, may seem removed from our daily experience right now. That’s only because we’ve already come to expect our relationship with information to be a seamless exchange of signals that brings us closer to what we want. When we swipe a fare card to enter a subway, we expect the metal turnstile to turn for us. When we check in on Facebook, we expect our status update to change instantly. When we enter our credit-card numbers into a Web site like Amazon, we expect that the product we purchased is on its way, that our account has already been debited, and that a record of the transaction has already been stored in a database to provide us with more recommendations at a later date. We only truly notice how much we interact with data when something goes wrong, when the metal subway turnstile doesn’t spin.

But this current state of affairs can't last. Data is becoming too big. We need to start paying attention to the data we create and what we want it to do for us.

What I find incredibly exciting about this vision for the future is that it is real. Big data is coming, and in many instances it's already here. So it's not a matter of *if* this will happen; it's not even a question of *when*. For me, the real question is *how*. How do we want this to happen? What do we want it to do for us? How will it make the lives of every person on the planet better?

In 2010, Intel chief technology officer Justin Rattner said, "Science and technology have progressed to the point where what we build is only constrained by the limits of our own imaginations." Imagining what the secret life of data could be is the real challenge; once we've done that, then all we have to do is go and build it.

That's just engineering. The difficult part is changing the story we tell ourselves about the future we're going to live in. If we can do that, then we can change the future.

Critical Thinking

1. The introduction to the article says the author argues "we need a better understanding of our relationship with the data. . . ." What do you think "our relationship with data" means? And why is this relationship important?
2. What is big data? What are some examples of big data in your life today? (What products do you regularly use that rely on big data?) What are the trade-offs to you that this data exists in your life?

3. The author says, "Ultimately . . . our data will be interacting with other data and devices." What potential negative might result if our data is able to interact with other data and other computer systems? How do we design systems and set policies to maximize the positive and minimize the negative outcomes?

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BRIAN DAVID JOHNSON is a futurist at Intel Corporation, where he is developing an actionable vision for computing in 2020 and writes extensively about future technologies in articles, academic papers as well as science-fiction short stories and novels. His books include *Fiction Prototyping: Designing the Future with Science Fiction*, *Future: The Future of Entertainment Computing and Media*, *Love, Fake Plastic Love*, and *Nebulous Mechanisms: Egerton Stories*.

Article

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What Will Social Media Look Like in the Future?

In 2004, a harvard student sought revenge on an ex-girlfriend. 10 years on, and facebook is a household name that reaches an estimated 1 billion users across the globe.

GINA LEDNYAK

Learning Outcomes

After reading this article, you will be able to:

- Enumerate Gina Lednyak's five predictions regarding the future of social media.
- Identify some of Mark Zuckerberg's recent start-up acquisitions.
- Discuss Zuckerberg's characterization of virtual reality as "the platform of tomorrow."

In 2005, a man named Karim realized he couldn't find a copy of the infamous Janet Jackson "wardrobe malfunction" at the Super Bowl, and YouTube was born. Not much grander in conception, Twitter's creators serendipitously plucked a word from the dictionary meaning "a short burst of inconsequential information," which inspired a platform so powerful it has been used to coordinate the revolution of countries.

If the origin stories of today's power players are anything to go by, social media has come a long way since its humble beginnings. So what new and incredible transformations can we expect to see in the coming years?

Long before we were taking selfies, Gina Lednyak (founder of one of the country's leading agencies L&A Social Media) was involved in the first-ever test group for Facebook. Since then she has watched the evolution of social media from a simple idea to the architect of vast fortunes and media empires that are literally reshaping how we engage with one another.

Gina says, "Looking at the advancement of social media in the current landscape, we can get a good sense of the trajectory of big themes that will emerge over the coming years."

These are Gina's five predictions that we can anticipate for the future of social media:

All of Gen-Y will be famous for 15 seconds

Warhol might have been on the money when he said, "In the future, everyone will be world-famous for 15 minutes."

Although, it will be more like 15 seconds. It seems as though every person is under the guise that they're just one viral video away from becoming famous. And it's kind of true. From YouTube sensations to Vine megastars, there's no question that an increasing number are enjoying their 15 seconds. As society's attention span continues to shrink and the value we place on digital things with minimal substance grows, we can expect to see the wave of 15-second-celebrity continue to rise to new and incredible levels.

Dawn of the technosexual age

Tinder is creating an entirely new set of social patterns that are changing the way we engage. The app has not only gamified dating; but by eliminating time lag and distance, Tinder has closed the gap between digital and physical courtship.

What does this mean? While social media will never replace face-to-face relationships, the rise of mobile dating will see social serendipity continue to plunge. The dating market will become more and more defined by efficiency, instant gratification and by our growing curiosity; to not only know about other people's interests and personality without delay, but what they think of ours.

Love it or hate it, Facebook is here to stay

Since Mark Zuckerberg launched "The Facebook" into the world from his dorm room, it's grown into one of the most valuable companies in history, worth \$135 billion. Despite this, recent times have seen endless questions around the future of Facebook. But while commentators continue to debate, Zuckerberg has been cleverly collecting start-up acquisitions, from WhatsApp to Britain's Ascenta; and over the coming decade Facebook will continue its transition from the world's largest social network to a bona fide tech giant.

Virtual reality meets social networks

One of these clever acquisitions includes an unexpected multi-million dollar deal to acquire Oculus, the company behind the Oculus Rift virtual reality headset. And our guess is Facebook has a little more planned for Oculus than a virtual reality Farmville. The Zuck himself has called virtual reality "the platform of tomorrow" with the chance to "change the way we work, play and communicate." It has left a lot of us wondering what in the world a Social-Media-Alternate-Universe looks like. This, we can't predict. But we can tell you that big changes to online social experiences are on the way.

The form that wearable technology will take in the future is also up for debate. Much bigger than smart watches and fitness bands, you can expect to see entirely different products emerge. Think helmets with built-in navigation systems, wearables for pets and smart buttons that could be pressed to change the colour of your clothes.

Social media will infiltrate our lives even more in the future.
Source: ThinkStock

Will there be another MySpace tragedy?

People often dispute when the next "MySpace Situation" will happen.

Unfortunately, one small change in user habit or one small change in technology has the potential to steamroll a social media network. It's hard to predict if one of today's power players will have a glorious fall from grace akin to MySpace's; but what they didn't have is access to deep analytics, big data and the ability to learn from other networks. In essence, MySpace evolved to meet consumer needs.

We predict the only way the bubble will burst is if today's social media giants is if it ignores user demand like MySpace did.

Critical Thinking

1. By the year 2025, will the "technosexual age" be a thing of the past, or will social media be even more integral to our lives than it now is? Explain.
2. Describe a form of wearable technology that is likely to become among the first in common, everyday use.
3. In what ways could MySpace have better evolved to meet consumer needs?

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Article

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Licence to Text

Fewer young people are learning to drive. The biggest reason is the Internet—it's replacing the need for a car.

KATE LUNAU

Learning Outcomes

After reading this article, you will be able to:

- Extrapolate from data and anecdotes to what extent the reported trend of less auto ownership and use is real.
- Understand that changing patterns of Internet use may have systemic impacts on non-Internet behaviors of people, and on whole industries dependent on those behaviors.

This summer, Sarah Mohammed is going on a road trip. She and three of her friends plan to drive from Montreal, where they live, to the Okanagan Valley. "We're going to work on some orchards and vineyards in the Interior of B.C.," says Mohammed, 23. The trip is to mark her recent graduation from the University of King's College, in Halifax. "I just finished school and I want to do something different," she says. But on the long drive west, Mohammed won't be taking any shifts behind the wheel—she doesn't have a driver's licence. "Oh, I won't actually be driving. I'm just being a leech," she jokes.

Mohammed didn't go out of her way to avoid learning how to drive. "It's just something that kind of happened, because of the places I lived," she says. As a high school student in Toronto, "I just didn't bother." At university in Halifax, "everything was very accessible by bike or bus, and it wasn't really necessary." Now, in Montreal, she walks, bikes or takes the subway. Mohammed worries that, once she gets to the rural B.C. Interior, she'll be dependent on her friends for lifts. Of the four heading west, only two can drive. "I'll pretty much be at their mercy," she says.

Mohammed isn't alone. She's one of a growing number of younger people who shrug their shoulders at the idea of getting a driver's licence, leaving car companies fretting and older generations perplexed. Getting a licence used to be a rite of passage—one that brought younger people together, gave them access to jobs, opportunities and the glories of the open road. It meant adulthood, and freedom. "That moment when the keys got passed from dad or mom to you, and you could drive by yourself, was a liberation," says Steve Penfold, who teaches a course on the history of the automobile at the University of Toronto. "It said, 'I'm trustworthy enough to drive a car. I'm bordering on adulthood.'" People remember their first car "like they remember nothing else," he says, and often they gave the car a name.

That feeling of freedom and coming of age was glorified in classic American movies and TV shows like *Grease*, *The Dukes of Hazzard* and *American Graffiti*. "Our idea of adolescence was invented in the 1940s and '50s, and cars were an important part of that," says Max Valiquette, managing director of strategy at Toronto-based ad agency Bensimon Byrne and a frequent commentator on youth culture. "Like making out in the back seat of a car, or going to a drive-through." Penfold has studied 1960s fast-food parking lots as "a meeting place for youth," where they'd hang out and flirt with the carhop, "and you couldn't get there without a car." On a Friday night, teenagers often did little else for fun but drive up and down the street. The ones with a driver's licence were heroes; others squabbled over who could ride shotgun up front.

Not anymore. "From World War II until just a few years ago, the number of miles driven annually on America's roads steadily increased," begins a recent report from Frontier Group, a think tank, and U.S. Public Interest Research Group (PIRG)

Education Fund. "Then, at the turn of the century, something changed." From 2001 to 2009, the number of "vehicle miles" travelled by Americans aged 16 to 34 dropped 23 per cent. "It does come as a surprise," says Phineas Baxandall of U.S. PIRG, co-author of the report. "It's been such an article of faith that we're driving more and more, with more road congestion, more highway buildup, in a vicious cycle." But that's not the case—and the decline is happening in other countries, too.

In another new study, researchers from the University of Michigan Transportation Research Institute (UMTRI) found a drop in younger licensed drivers in more than half of 15 countries they surveyed, including Canada. Among 25- to 34-year-olds here, 92 per cent had a licence in 1999; 10 years later, 87 per cent did. In Canada, this decline occurred in every age group from 16 to 54.

In the U.S., Great Britain, Germany, Japan, Sweden, Norway and South Korea, the percentage of younger people with a licence also fell. One-third of all licensed drivers in the U.S. were under 30 in 1983; today, it's less than a quarter. This can't be pinned entirely on the recession. The drop in licensed drivers "predates the economic downturn," Baxandall says. Young people who have jobs and are doing well financially are also driving less.

Instead, they're opting for alternatives. Bike culture is flourishing, with bike-sharing networks popping up everywhere from Montreal to Washington and Honolulu. In 2009, Americans aged 16 to 34 took 24 per cent more bike trips than in 2001—even though that age group shrank in size by two per cent. They also walked 16 per cent more often, and increased the number of miles travelled on public transit by 40 per cent, according to the report Baxandall co-wrote. A 2011 survey from Zipcar, the car-sharing service, notes that 55 per cent of millennials (18 to 34) are making an effort to drive less, partly because of concern over the environment, and partly because of the cost of owning a car.

But the biggest reason for the move away from driving is the Internet—in some ways, it has replaced the need for a car, since how we connect has completely changed. According to the Zipcar survey, 68 per cent of 18- to 34-year-olds said they sometimes use social media to connect with friends and family instead of going out to see them. The Michigan study found that having a higher proportion of Internet users is associated with lower licensing rates among young people. If given the choice between having Internet access or a car, 46 per cent of all 18- to 24-year-old U.S. drivers say they'd take the Internet, according to technology researcher Gartner Inc. "Virtual contact through the Internet is replacing the need for physical contact," says Michael Sivak, head of UMTRI's Human Factors Group and the Michigan study's co-author. "They just don't need to be with others as often as they did in the past, because they can connect

other ways than physically." Car manufacturers are aware of the shift. "For many baby boomers and Gen X, a car is a really important status symbol," says Sheryl Kurland, manager of Ford global consumer trends and future trends. "Texting, cellphone, and a lot of kids are getting one before

Everyone can now shop, watch movies, play video games, listen to music and catch up with friends online. While they're at the house, many would rather take the bus and subway than drive. Texting is the dominant daily mode of communication, according to the Pew Research Center—but in some provinces, there's a ban on using hand-held cellphones while driving. "When you talk to people about why they're not driving, they'll say that when they're driving, they're not driving," Baxandall says.

For young people of any generation, "freedom of movement is an important thing," Valiquette says. "Cars used to be a necessity. Now, after insurance payments and parking payments, it's a waste of time on texting and Twitter—not to mention the cost of getting a driver's licence, which, with the graduation requirements, take years—cars represent the opposite. "They're not necessary."

Growing up in Winnipeg, Erin Klassen had to get her driver's licence. When she turned 16, she moved to North Bay, Ont.; there wasn't much of a car-sharing system there, Klassen says, "but a lot of my friends were a couple of years older, and they could pick me up. It was never an issue. I'd throw them some money and they'd get me a coffee when we went out." In the final year of her degree at the University of Toronto, she moved to the East Coast. "She borrowed her car from her brother, but she couldn't drive," Klassen says. "I was in charge of driving, and the music."

Klassen, 28, now works from home in western Ontario. She's the editor of an online magazine. She still does her own driving, but she has a live-in boyfriend. In her neighbourhood, there are markets, clothing boutiques, coffee shops, restaurants, and more. "I can walk to get the things I need." Her boyfriend, who is 30, probably get his licence eventually, but "I honestly don't want to get mine."

Of course, getting around without a car is not always easily accomplished in a city. Households in cities are 2.5 times more likely not to own one than those in rural areas, but younger people—those at the forefront of the move away from driving—tend to prefer living in cities. A 2011 National Association of Realtors survey found that 62 per cent of 18- to 29-year-olds prefer living in a "smart growth" community with walkable homes, restaurants, libraries and decent public transit instead of contributing to sprawl.

For some people, the idea of driving can be a luxury. Emma O'Neill grew up in the small town

where getting a licence was “a great thing, because it meant you could go to the city—Ottawa,” about an hour away. But she was nervous, and says she only got her learner’s permit at her parents’ insistence. “My dad took me out in his truck for the first time, this huge massive thing. It was fun, but I was really scared.” O’Neill later moved to Toronto for school and let her permit expire. In Toronto, “I don’t really have any friends who drive cars,” says O’Neill, 23. When she goes back to Arnprior to visit, she walks or hikes around town, or gets a lift from her parents.

One powerful incentive for getting a licence is still parent-hood. Stephanie Kale grew up in Windsor, Ont., and lives in Ottawa; she didn’t need to learn how to drive until she had a child almost three years ago. Then she got her licence and bought a car one week later. “My daughter was my motivation,” says Kale, 32, who left her downtown apartment for a less expensive place further from the city core. Now she’s in a better financial situation, and she’s tempted to move back downtown and use her car less.

People who can’t drive sometimes end up feeling like a mooch. If Mohammed’s friends want to drink, she can’t be the designated driver. On their road trip, “it’s just crappy because it will always have to be one of them,” she says, referring to her two friends who have their licences. They’ll be bringing an arsenal of technology to B.C.—including a MacBook Pro laptop—but the driver can’t use it on long boring stretches of highway, while Mohammed can check her phone and text any time. Even in Montreal, her inability to drive can leave her feeling dependent. When she spoke to *Maclean’s*, she was about to have her wisdom teeth removed; a friend would be dropping her off at the appointment and picking her up afterwards. “I can’t be that person for someone else,” she says.

Despite these inconveniences, some people, like Dan Dubuc in Vancouver, B.C., say they’d rather not drive because of the environment. “I’m holding out until I can buy a reliable vehicle that isn’t powered by fossil fuel,” says Dubuc, 24, a student at Langara College. Maybe so, but it’s hard to believe that if a driver’s licence had the cachet it once did, so many would be holding out too. And such criticisms of the car are fairly recent. In the 1960s, “there was a godlike sense of the car being important,” Penfold says. “You might have had one guy on the margins who didn’t think the car was a positive force for society,” but these days, more people share Dubuc’s attitude, making cars seem less cool than ever.

With youth unemployment in Canada roughly double the national average, the cost of owning a car could discourage many young people from driving. But cars are getting more affordable. It took on average 18.8 weeks’ worth of income (before tax) to pay off a new car in 2011, according

to auto analyst Dennis DesRosiers. Ten years before, it would have taken three weeks longer. “Vehicle ownership in Canada is going up, not down,” says DesRosiers, who adds that up to 90 per cent of the demand for new vehicles comes from existing car owners.

Car companies are trying to catch the interest of aloof younger buyers by creating vehicles that are an extension of their smartphones. Chevrolet MyLink, an “infotainment system,” lets a driver connect her smartphone with the car to access personal music libraries, video and photo albums on a colour touchscreen (the latter two only work when the car is going less than five kilometres per hour). The Ford Sync system can stream music from the driver’s phone through the vehicle’s sound system, and reads incoming text messages aloud, among many other features.

Companies also use heavy product placement to make sure their products stay visible to younger drivers. “One of our most famous was the Camaro in *Transformers*,” says Rob Assimakopoulos, general director of marketing and communications of GM Canada. Ford, which has set its sights on social media marketing to reach millennials, launched its Fiesta in North America by recruiting bloggers to drive the car and create buzz. An ad for the Chevy Sonic, which played during the Super Bowl, featured the band OK Go using the car as a musical instrument—a very different way of perceiving vehicle performance.

Some manufacturers have accepted the fact that, for a growing number of people, cars are no longer an expression of personal identity. Peugeot, in turn, has launched a European program called Mu: members can visit a dealer to rent out whichever “mobility solution” best suits their needs that day, whether it’s a scooter, van or bike. Maybe this is the car dealership of the future. Maybe we’ll see more “self-driving cars,” like one Google has developed, suggests Rudi Volti, professor emeritus of sociology at Pitzer College in Claremont, Calif., and an expert in car culture. He wonders if “a more European situation” will emerge, where people have cars but tend to use them for making day trips, and not for commuting to work. “I think there’s always going to be a place for the private automobile,” he says. “It’s not just the freedom; it’s the ability to be with whomever you want, or nobody at all.”

But ironically, today it’s actually easier for young people to be with whomever they want *without* a car. “You can have a conversation with 15 people online,” Valiquette says. “That didn’t exist 40 years ago.” The licensed driver, once the source of envy among his friends, is stuck talking to the passengers in his car. Those passengers, with their smartphones in hand, are the ones to envy: they can chat virtually with anybody.

Mohammed hopes to get her driver's licence one day. "Someone mentioned to me that having your licence, it's a coming-of-age thing. On the grand list of stuff you've got to do in life," she says, "that's one that needs to be checked off the list." Eventually.

Critical Thinking

1. One part of the author's thesis is that millennials have less need to drive because the Internet has partially replaced the need to get together face to face. Given that the total miles travelled by 16–34-year-olds dropped marginally (23%) last decade, do you accept this thesis as reasonable? Why or why not?
2. This article is from a Canadian magazine and references mostly Canadian data and anecdotes. Do you think the trend reported applies equally to Americans? Why or why not?
3. If you were an auto industry executive and read the data in this article, how would you respond to it in terms of changing product design, changing your approach to marketing, or would you ignore this trend as a passing fad—if it exists at all?

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Article

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The Truth about Video Games and Gun Violence

Aaron Alexis reportedly loved first-person shooters. Does that explain his mass killing at the Washington Navy Yard?

ERIK KAIN

Learning Outcomes

After reading this article, you will be able to:

- Summarize the research on the connection between video game playing and violence.
- Articulate why it is difficult to research the relationship between video game playing and violence.
- Understand and articulate both the costs and benefits of game playing among a large subset of our population.

It was one of the most brutal video games imaginable—players used cars to murder people in broad daylight. Parents were outraged, and behavioral experts warned of real-world carnage. “In this game a player takes the first step to creating violence,” a psychologist from the National Safety Council told the *New York Times*. “And I shudder to think what will come next if this is encouraged. It’ll be pretty gory.”

To earn points, *Death Race* encouraged players to mow down pedestrians. Given that it was 1976, those pedestrians were little pixel-gremlins^[1] in a 2-D black-and-white universe that bore almost no recognizable likeness to real people.

Indeed, the debate about whether violent video games lead to violent acts by those who play them goes way back. The public reaction to *Death Race* can be seen as an early predecessor to the controversial *Grand Theft Auto*^[2] three decades later and the many other graphically violent and hyper-real games of today, including the slew of new titles debuting at the E3 gaming^[3] summit^[3] this week in Los Angeles.

In the wake of the Newtown massacre and numerous other recent mass shootings,^[4] familiar condemnations of and questions about these games have reemerged. Here are some answers.

Who’s claiming video games cause violence in the real world?

Though conservatives tend to raise it more frequently, this bogeyman plays across the political spectrum, with regular calls for more research, more regulations, and more censorship. The tragedy in Newtown set off a fresh wave:

Donald Trump tweeted:^[5] “Video game violence & glorification must be stopped—it’s creating monsters!” Ralph Nader likened violent video games to “electronic child molesters.”^[6] (His outlandish rhetoric was meant to suggest that parents need to be involved in the media their kids consume.) MSNBC’s Joe Scarborough asserted that the government has a right to regulate^[7] video games, despite a Supreme Court ruling to the contrary.^[8]

Unsurprisingly, the most over-the-top talk came from the National Rifle Association:

“Guns don’t kill people. Video games, the media, and Obama’s budget kill people,” NRA Executive Vice President Wayne LaPierre said at a press conference^[9] one week after the mass shooting at Sandy Hook Elementary. He continued without irony: “There exists in this country, sadly, a callous, corrupt and corrupting shadow industry that sells and stows violence against its own people through vicious, violent video games with names like *Bulletstorm*, *Grand Theft Auto*, *Mortal Kombat*, and *Splatterhouse*.”

Has the rhetoric led to any government action?

Yes. Amid a flurry of broader legislative activity on gun violence,^[10] since Newtown there have been proposals specifically focused on video games. Among them:

State Rep. Diane Franklin, a Republican in Missouri, sponsored a state bill^[11] that would impose a 1 percent tax on violent games, the revenues of which would go toward "the treatment of mental-health conditions associated with exposure to violent video games." (The bill has since been withdrawn.) Vice President Joe Biden^[12] has also promoted this idea.

Rep. Jim Matheson (D-Utah) proposed a federal bill^[13] that would give the Entertainment Software Rating Board's ratings system the weight of the law, making it illegal to sell Mature-rated games to minors, something Gov. Chris Christie (R-N.J.) has also proposed for his home state.^[14]

A bill introduced in the Senate by Sen. Jay Rockefeller (D-W.Va.) proposed studying the impact of violent video games on children.^[15]

So who actually plays these games and how popular are they?

While many of the top selling games in history have been various Mario and Pokemon titles, games from the first-person-shooter genre, which appeal in particular to teen boys and young men, are also huge sellers.

The new king of the hill is Activision's Call of Duty: Black Ops II, which surpassed Wii Play as the No. 1 grossing game^[16] in 2012. Call of Duty is now one of the most successful franchises in video game history, topping charts year after year and boasting around 40 million active monthly users playing one of the franchise's games over the internet. (Which doesn't even include people playing the game offline.) There is already much anticipation for the release later this year of Call of Duty: Ghosts.

The Battlefield games from Electronic Arts also sell millions of units with each release. Irrational Games' BioShock Infinite, released in March, has sold nearly 4 million units and is one of the most violent games to date. (Read *MoJo's* interview^[17] with Irrational's cofounder and creative director, Ken Levine.)

What research has been done on the link between video games and violence, and what does it really tell us?

Studies on how violent video games affect behavior date to the mid 1980s, with conflicting results. Since then there have been at least two dozen studies^[18] conducted on the subject.

"Video Games, Television, and Aggression in Teenagers," published by the University of Georgia in 1984, found that playing arcade games was linked to increases in physical aggression. But a study published a year later by the Albert Einstein College of Medicine, "Personality, Psychopathology, and Developmental Issues in Male Adolescent Video Game Use," found that

arcade games have a "calming effect" and that to blow off steam. Both studies relied on surveys asking boys and young men about their media consumption.

Studies grew more sophisticated over the years, but the findings continued to point in different directions. Some found that people who had played competitive video games were less of whether they were violent or not, exhibiting less aggression. In 2012, a different study found that playing in the graphically violent Halo II made players more cooperative even outside of video game play.

Metastudies—comparing the results and the methods of prior research on the subject—have also been published. One published in 2010 by the American Psychological Association, analyzing data from multiple studies involving 130,000 subjects, concluded that "violent video games increase aggressive thoughts, angry feelings, and aggression, and decrease empathic feelings and prosocial behavior." But results from another metastudy showed that the effects of violent video games over the years suffered from publication biases that tilted the results toward foregone conclusions.

Why is it so hard to get good research on video games?

"I think that the discussion of media and violence in video games—as some kind of serious social problem—has been an attempt to kind of corral and solve what is a much larger issue," says Carly Kocurek, a professor of Digital Media at the Illinois Institute of Technology. "Games are not played in a vacuum, and they reflect the cultural milieu of the time. So of course we have violent games."

There is also the fundamental problem of measuring the outcomes ethically and effectively.

"I think anybody who tells you that there's consistency to the aggression research is lying to you," says J. Ferguson, associate professor of psychology at Texas A&M International University. "There's no consistency in the aggression research. The impression is that at this point it is not strong evidence of any kind of causal, or even really correlational, link between video game violence and aggression, no matter how you may define aggression."

Moreover, determining why somebody commits an act like a school shooting can be very complex. Mental-health issues are almost always present in the lives of mass shooters^[20] over the last 30 years, but they are not the only problems.

But America's consumption of violent video games help explain our inordinate rate of gun violence?

Actually, no. A look at global video game consumption in relation to gun death statistics reveals that the United States far outpace those in other countries with higher per capita video game consumption.

A 10-country comparison^[21] from the *Washington Post* shows the United States as the clear outlier in this regard. Countries with the highest per capita spending on video games, such as the Netherlands and South Korea, are among the safest countries in the world when it comes to guns. In other words, America plays about the same number of violent video games per capita as the rest of the industrialized world, despite that we far outpace every other nation in terms of gun deaths.

Or, consider it this way: With violent video game sales almost always at the top of the charts,^[22] why do so few gamers turn into homicidal shooters? In fact, the number of violent youth offenders in the United States fell by more than half between 1994 and 2010—while video game sales more than doubled since 1996. A working paper from economists on violence and video game sales published in 2011 found that higher rates of violent video game sales in fact correlated with a decrease in crimes, especially violent crimes.

I'm still not convinced. A bunch of mass shooters were gamers, right?

Some mass shooters over the last couple of decades have had a history with violent video games. The Newtown shooter, Adam Lanza, was reportedly "obsessed" with video games. Norway shooter Anders Behring Breivik was said to have played *World of Warcraft* for 16 hours a day until he gave up the game in favor of *Call of Duty: Modern Warfare*, which he claimed he used to train with a rifle.^[23] Aurora theater shooter James Holmes was reportedly a fan of violent video games^[24] and movies such as *The Dark Knight*. (Holmes reportedly went so far as to mimic the Joker by dying his hair prior to carrying out his attack.)

Jerald Block, a researcher and psychiatrist in Portland, Oregon, stirred controversy when he concluded that Columbine shooters Eric Harris and Dylan Klebold carried out their rampage after their parents took away their video games. According to the *Denver Post*,^[25] Block said that the two had relied on the virtual world of computer games to express their rage, and that cutting them off in 1998 had sent them into crisis.

But that's clearly an oversimplification. The age and gender^[26] of many mass shooters, including Columbine's, places them right in the target demographic for first-person-shooter (and most other) video games. And people between ages 18 and 25 also tend to report the highest rates of mental-health issues.^[27] Harris and Klebold's complex mental-health problems have been well documented.^[28]

To hold up a few sensational examples as causal evidence between violent games and violent acts ignores the millions of other young men and women who play violent video games and never go on a shooting spree in real life. Furthermore, it's very difficult to determine empirically whether violent kids are simply drawn to violent forms of entertainment, or if the entertainment somehow makes them violent.

Without solid scientific data to go on, it's easier to draw conclusions that confirm our own biases.

How is the industry reacting to the latest outcry over violent games?

Moral panic over the effects of violent video games on young people has had an impact on the industry over the years, says Kocurek, noting that "public and government pressure has driven the industry's efforts to self regulate."

In fact, it is among the best when it comes to abiding by its own voluntary ratings system, with self-regulated retail sales of Mature-rated games to minors lower than in any other entertainment field.^[14]

But is that enough? Even conservative judges think there should be stronger laws regulating these games, right?

There have been two major Supreme Court cases involving video games and attempts by the state to regulate access to video games. *Aladdin's Castle, Inc. v. City of Mesquite* in 1983 and *Brown v. Entertainment Merchants Association* in 2011.

"Both cases addressed attempts to regulate youth access to games, and in both cases, the court held that youth access can't be curtailed," Kocurek says.

In *Brown v. EMA*, the Supreme Court found that the research simply wasn't compelling enough to spark government action, and that video games, like books and film, were protected by the First Amendment.

"Parents who care about the matter can readily evaluate the games their children bring home," Justice Antonin Scalia wrote when the Supreme Court deemed California's video game censorship bill unconstitutional in *Brown v. EMA*. "Filling the remaining modest gap in concerned-parents' control can hardly be a compelling state interest."

So how can we explain the violent acts of some kids who play these games?

For her part, Kocurek wonders if the focus on video games is mostly a distraction from more important issues. "When we talk about violent games," she says, "we are too often talking about something else and looking for a scapegoat."

In other words, violent video games are an easy thing to blame for a more complex problem. Public policy debates, she says, need to focus on serious research into the myriad factors that may contribute to gun violence. This may include video games—but a serious debate needs to look at the dearth of mental-health care^[29] in America, our abundance of easily accessible weapons, our highly flawed background-check system, and other factors.

There is at least one practical approach to violent video games, however, that most people would agree on: Parents should think deliberately about purchasing these games for their kids. Better still, they should be involved in the games their kids play as much as possible so that they can know firsthand whether the actions and images they're allowing their children to consume are appropriate or not.