

Reclaiming an Awkward Term: What we Might Learn from “Digital Natives”

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Abstract: The use of the term “digital natives” has led to a great deal of controversy. Most academics dislike it, for good and sufficient reasons. Among other problems, the term implies that digital skills are innate rather than taught and learned. But the term resonates for many parents, teachers, and policy-makers. In this article, we describe our efforts to reclaim the awkward term “digital natives,” despite its obvious defects, in an attempt to reach a broader audience for the sound social scientific research about youth media practices that is emerging from the academic world.

Many—though not all—young people are using digital media in ways that are changing how they learn and how they relate to one another, to information, and to institutions. In this article, we make the case that the sum of these changes in youth media practices can be good for teaching and learning, but that they are not without complications. Along the way we also make the case, in tension with what others in this volume have argued, that the use of the term “Digital Natives” can be a constructive way to reach parents and teachers and that it can be done in such a fashion that is true to sound research about youth practices with respect to digital media.

The roadmap to this Article is as follows. First, we explore the awkward term “Digital Natives,”¹ explain why we have chosen to use it

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in certain contexts, and to describe some of the common attributes of this subset of the world's young people today. Then, we will address some of the key problems faced by these young people and others in society. Last, we will end with a positive outlook. While there are problems associated with youth media practices, and challenges for large learning institutions in responding to those problems, overall we believe a bright future can lie ahead if we are smart about it and listen to sound research.

The goal of our research has been to understand how young people use technology and relate to information in a digital era and to address the implications of lives that are highly mediated by digital technologies. At the same time, we have looked hard at articulated positions about youth and digital media that might be more myth than reality. One related purpose of our work is to examine what the most important implications of these practices are for learning institutions, including universities and libraries.

In performing this research, we have built on the shoulders of giants. There are many other people who have studied this topic for a long time, like Mizuko Ito,² danah boyd,³ and, at the Pew Center for Internet and American Life, Amanda Lenhart.⁴ While the most extensive empirical work on this topic has been done in the United States and in the United Kingdom, we have grounded our work in the

¹ JOHN PALFREY & URS GASSER, *BORN DIGITAL: UNDERSTANDING THE FIRST GENERATION OF DIGITAL NATIVES* (2008).

² MIZUKO ITO, SONJA BAUMER, MATTEO BITTANTI, DANAH BOYD, RACHEL CODY, BECKY HERR-STEPHENSON, HEATHER A. HORST, PATRICIA G. LANGE, DILAN MAHENDRAN, KATYNKA Z. MARTÍNEZ, C. J. PASCOE, DAN PERKEL, LAURA ROBINSON, CHRISTO SIMS, & LISA TRIPP, *HANGING OUT, MESSING AROUND, AND GEEKING OUT: KIDS LIVING AND LEARNING WITH NEW MEDIA* (2010); MIZUKO ITO, HEATHER A. HORST, MATTEO BITTANTI, DANAH BOYD, BECKY HERR-STEPHENSON, PATRICIA G. LANGE, C. J. PASCOE, & LAURA ROBINSON (WITH SONJA BAUMER, RACHEL CODY, DILAN MAHENDRAN, KATYNKA Z. MARTÍNEZ, DAN PERKEL, CHRISTO SIMS, & LISA TRIPP), *THE JOHN D. AND CATHERINE T. MACARTHUR FOUNDATION REPORTS ON DIGITAL MEDIA AND LEARNING – LIVING AND LEARNING WITH NEW MEDIA: SUMMARY OF FINDINGS FROM THE DIGITAL YOUTH PROJECT* (Nov. 2008), available at <http://digitalyouth.ischool.berkeley.edu/report>.

³ danah boyd, *Why Youth ♥ Social Network Sites: The Role of Networked Publics in Teenage Social Life*, in *MACARTHUR FOUNDATION SERIES ON DIGITAL LEARNING - YOUTH, IDENTITY, AND DIGITAL MEDIA VOLUME*, 119–42 (David Buckingham ed., 2007), available at <http://www.danah.org/papers/WhyYouthHeart.pdf>.

⁴ Amanda Lenhart & Mary Madden, *TEEN CONTENT CREATORS AND CONSUMERS*, PEW INTERNET & AMERICAN LIFE PROJECT (Nov. 2, 2005), <http://www.pewinternet.org/Reports/2005/Teen-Content-Creators-and-Consumers.aspx>.

extensive literature of researchers around the world.⁵ To the extent that we have relied upon the work of other colleagues, we have documented much of that reading in the form of two extensive literature reviews⁶ with a forthcoming third literature review led by Urs Gasser related to youth, media, credibility and information quality.⁷ A related piece, written in partnership with UNICEF, is a review of the literature related to youth media practice and safety around the world.⁸ Our book, *Born Digital*, also includes a Selected Bibliography that notes the texts and projects that most influenced our thinking.⁹ To complement the research work of others, we have also held our own series of focus groups and interviews to try and understand what the key issues are associated with how young people use digital media.

⁵ *E.g.*, MACARTHUR FOUNDATION SERIES ON DIGITAL LEARNING - YOUTH, IDENTITY, AND DIGITAL MEDIA (David Buckingham ed., 2007), *available at* <http://mitpress.mit.edu/catalog/item/default.asp?ttype=2&tid=11394>; NICOLA DÖRING, SOZIALPSYCHOLOGIE DES INTERNET. DIE BEDEUTUNG DES INTERNET FÜR KOMMUNIKATIONSPROZESSE, IDENTITÄTEN, SOZIALE BEZIEHUNGEN UND GRUPPEN (2d ed. 2003); MACARTHUR FOUNDATION SERIES ON DIGITAL LEARNING - DIGITAL MEDIA, YOUTH, AND CREDIBILITY (Miriam J. Metzger & Andrew J. Flanagin eds., 2007), *available at* <http://mitpress.mit.edu/catalog/item/default.asp?ttype=2&tid=11390>; SONIA LIVINGSTONE, CHILDREN AND THE INTERNET (2009); KIRSTEN DROTNER & SONIA LIVINGSTONE (EDS.), INTERNATIONAL HANDBOOK OF CHILDREN, MEDIA AND CULTURE (2008).

⁶ *See, e.g.*, Alice Marwick, Diego Murgia-Diaz & John Palfrey, YOUTH, PRIVACY AND REPUTATION (LITERATURE REVIEW) (2010), http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1588163; Andrew Schrock & danah boyd, *Online Threats to Youth: Solicitation, Harassment, and Problematic Content*, in RESEARCH ADVISORY BOARD REPORT FOR THE INTERNET SAFETY TECHNICAL TASK FORCE (2008), <http://www.danah.org/papers/ISTTF-RABLitReview.pdf>; *See also* Samantha Biegler & danah boyd, RISKY BEHAVIORS AND ONLINE SAFETY: A 2010 LITERATURE REVIEW (DRAFT) (2010), <http://www.zephorio.org/files/2010SafetyLitReview.pdf>.

⁷ URS GASSER, SANDRA CORTESI, MOMIN MALIK, & ASHLEY LEE, YOUTH AND DIGITAL MEDIA: FROM CREDIBILITY TO INFORMATION QUALITY. A REVIEW OF SELECTED LITERATURE (DRAFT/WORK IN PROGRESS) (forthcoming).

⁸ URS GASSER, COLIN MACLAY, & JOHN PALFREY, WORKING TOWARDS A DEEPER UNDERSTANDING OF DIGITAL SAFETY FOR CHILDREN AND YOUNG PEOPLE IN DEVELOPING NATIONS: AN EXPLORATORY STUDY BY THE BERKMAN CENTER FOR INTERNET & SOCIETY AT HARVARD UNIVERSITY, IN COLLABORATION WITH UNICEF (Jun. 16, 2010), *available at* https://cyber.law.harvard.edu/publications/2010/Digital_Safety_Children_Young_People_Developing_Nations.

⁹ PALFREY & GASSER, *supra* note 1, at 359–69.

I. RECONSTRUCTING “DIGITAL NATIVES”

The task of deconstructing the term “Digital Natives” is a worthy one. The term itself evokes strong feelings, many of them sharply negative. Over the past decade, there has been a great deal of healthy debate over the term “Digital Natives” as a means to describe the habits of youth. The use of the term, in this respect, has served an important rhetorical purpose.¹⁰ Many people—in fact, most academics we know—do not like the term at all and feel strongly that its use can do more harm than good. For our part, despite its obvious demerits as a term, we decided to take a hard path: to embrace this term, in part, and to take on the difficult task of redefinition.

Our rationale for the approach of using, rather than rejecting, the term Digital Natives has been to lean into the public discourse. The public conversation that we encountered, outside our own sheltered academic cloister, is often framed in the context of Digital Natives. For many parents and educators, the idea of “Digital Natives” resonates deeply, and this resonance is not something academics should just ignore or dismiss. Our decision was to apply our own research and the work of others to understand the salience of the term and to use it as a teaching and learning device, and to insert into this discourse insights about what sound social science is telling us. The risks of doing so—in particular, of *contributing* to the use of an awkward and limited term—are plain, but we perceived the benefits to be greater. Our approach has been to ask: is there a way to use an awkward term in a constructive manner, without resorting to reductionism, and without implying technological determinism? What are the facts about youth practice and can they fit into this frame in a way that we can help move the public discourse forward?

There are two subsidiary questions to answer. First, is there a generational break that divides older and younger people by how each group uses technology? The answer is “no.” People have adopted new technologies at varying rates and at varying ages over time. Here, we differ significantly from Marc Prensky’s original formulation of the term “Digital Natives.”¹¹ He uses words like “singularity,”

¹⁰ See Susan C. Herring, *Questioning the Generational Divide: Technological Exoticism and Adult Construction of Online Youth Identity*, in *YOUTH, IDENTITY, AND DIGITAL MEDIA*, 75 (David Buckingham ed., 2008), available at <http://www.mitpressjournals.org/doi/pdf/10.1162/dmal.9780262524834.071>.

¹¹ Marc Prensky, *Digital Natives, Digital Immigrants*, 9 *ON THE HORIZON* (Oct. 2001), <http://www.marcprensky.com/writing/Prensky%2520-%2520Digital%2520Natives,%2520Digital%2520Immigrants%2520-%2520Part1.pdf>.

“*discontinuity*,” and “*fundamentally different*” (emphases original) to describe young people.¹² But there is no moment in history that demarks an overnight change in how people use technology or what it means for our lives or our societies. People have learned and adapted to life in a partially digitally mediated world at different rates.

Second, is there a generation of young people all using technology in the same way? Again, the answer is “no.”¹³ There is no extent to which one could say all youth of recent generations use technology in advanced ways. It is also not the case that those of us who are older use technology in ways identical to one another, or in ways more naïve than those of children. Instead, what we focus on is a *subset* of young people exhibiting certain *practices* that are potentially very sophisticated, rather than arguing for a *generation* all acting and thinking identically.¹⁴

The core idea, what we mean when we talk about Digital Natives, is to allow a term to describe a subset of today’s youth; the manners in which they relate to information, technology, and one another; the problems that arise from some of these practices; and the new possibilities for creativity, learning, entrepreneurship, and innovation.¹⁵ By identifying the youth exhibiting sophisticated usage—whether through the term “Digital Natives” or otherwise—we can then talk with them and learn about the larger social context in which their sophisticated skills and attitudes exist. The purpose of such study is ultimately to be able to extend, to a broader audience, an argument about the creative possibilities associated with how some young people use new technologies.

We identify Digital Natives as a population, and not a generation, of young people who use technology in relatively advanced ways. In order to be classified by this term, a young person has to meet three criteria. First, they were born after 1980. This date is, in essence, arbitrary; a date a few years in earlier or later could have worked just as well, given the evolutionary, rather than revolutionary, character of these changes. The reason we chose this particular year was to signal that these young people were born after the advent of digitally-

¹² See also Herring, *supra* note 10.

¹³ See Eszter Hargittai, *Digital Na(t)ives? Variation in Internet Skills and Uses among Members of the ‘Net Generation’* 80 *SOCIOLOGICAL INQUIRY* 92, 93 (2010), available at <http://webuse.org/p/a29>.

¹⁴ PALFREY & GASSER, *supra* note 1, at 15.

¹⁵ *Id.*

mediated social technologies, such as bulletin board systems (BBSs), and that they did not know a world in which these types of online social media did not exist. Second, they have access to digital technologies. It is important to recognize that fewer than 2 billion out of 6.8 billion people on the planet have access to digital technologies. Last, and most crucially, Digital Natives are those with the skills to use these digital technologies in relatively sophisticated ways.¹⁶

The most important of these three factors is the third. These sophisticated skills are often referred to as a level of “digital literacy” or “new media literacy.”¹⁷ These skills relate to analytical abilities that enable a young person to distinguish situations that may prove dangerous to them from those that are ordinary social situations with peers; to locate and recognize high-quality information; to manage their own identity as it forms through the use of selective information sharing and privacy settings on social network sites; and so forth.

It is not always the case that young people are growing up in environments where they are supported in their use of these technologies. This is one of the primary difficulties of the term “native”. It is not true that access begets skill; education is a necessary part of the equation for young people to develop the media literacies they need to succeed in a digitally-mediated world. Nor is it sufficient that they can get access to the Internet in a school or a library; we know from our research that for young people to develop sophisticated skills, it is crucial that they have a home where parents support them, schools where teachers support them, and libraries where librarians support them. The work of Henry Jenkins and Eszter Hargittai on this “participation gap” is instructive on this score.¹⁸ No amount of “reclaiming” of the term Digital Natives can overcome these crucial social problems associated with uneven levels of skill, education, and literacy, whether digital or not. It is a further risk of the use of the term that one might contribute to an incorrect presumption of the innate ability of youth born after a certain moment in history, a presumption that must be rebutted at every turn.

¹⁶ *Id.* at 1.

¹⁷ Henry Jenkins, Katie Clinton, Ravi Purushotma, Alice J. Robison, & Margaret Weigel, MACARTHUR FOUNDATION DIGITAL MEDIA AND LEARNING INITIATIVE – CONFRONTING THE CHALLENGES OF PARTICIPATORY CULTURE: MEDIA EDUCATION FOR THE 21ST CENTURY (2006), http://digitalllearning.macfound.org/atf/cf/%257B7E45C7E0-A3E0-4B89-AC9C-E807E1B0AE4E%257D/JENKINS_WHITE_PAPER.PDF; *See also* www.newmedialiteracies.org.

¹⁸ *Id.*; Hargittai, *supra* note 13.

The critics of the term “Digital Natives” are quite right in many respects. Among other things, it is not enough to be born on a certain date in history and merely to have access to technology. And it is not the case that youth are born with an intuition for how to use digital tools or how to sort through online information. Some young people are born *into* a digital *world* (hence the title we chose for our book, “Born Digital”), but this digital world exists only because of the support structures that we, as parents, educators, and librarians, provide, and the technological environment that we as humans are constructing. The challenge is not even as simple as a separation between “digital haves” and “digital have-nots” that we can we try to bridge; we cannot forget that there is a vast diversity of attitudes towards and expectations of technology, and differing levels of skill and sophistication, found within the youth fitting the above three criteria. Our challenge is to find and understand the very best practices and then to try and extend the possibilities presented by such practices to people regardless of when they were born, across a range of access to digital technologies, and across a range of support structures.

Many people born before 1980, too, are skilled at using new digital technologies, often more skilled in fact than their younger counterparts. The foreignness and bewilderment suggested by the term “Digital Immigrants,” the counterpart term to “Digital Natives” in its original formulation, is not an accurate or descriptive label for many adults.¹⁹ Many librarians, for instance, use technology just as effectively as any young person, or more so. The Pew Internet & American Life Project identifies about a third of U.S. adults (18+) as “technology elites” whose “trendsetting ways often ripple widely in society.”²⁰ The majority (three-fifths) are “Wired GenXers” with an average age of 36. The “Young Tech Elites,” with an average age of 22, are only a fifth of these technology elites. A further fifth are “Older

¹⁹ David Weinberger also suggests the category of “Digital Settlers” for those like himself who were there at the beginning of the digital revolution and helped shape it. David Weinberger, *Digital Natives, Immigrants and Others*. 17 KMWorld (2008). available at <http://www.kmworld.com/Articles/News/News-Analysis/Digital-natives,-immigrants-and-others--40494.aspx>. This is a particularly appropriate extension of the “digital nationality” metaphor as it obviously refers to the practices and achievements of a select *population*, and not the characteristics of an entire *generation*. *Id.*

²⁰ John B. Horrigan, *Consumption of Information Goods and Services in the U.S.*, PEW INTERNET & AMERICAN LIFE PROJECT ii-iii (Nov. 23, 2003), <http://pewinternet.org/Reports/2003/Consumption-of-Information-Goods-and-Services-in-the-US.aspx>.

Wired Baby Boomers,” a population of “yesterday’s technological elites who have maintained their sophistication over time.”²¹ There are, of course, older people who use technology less effectively and think about technology in less open-minded ways than do Digital Natives, but it is not accurate to label all adults “Digital Immigrants.” The category is not a particularly helpful one, especially as there is no clear utility in identifying and labeling those among older generations who are less skillful at using technology. Without the generational essentialism of employing Digital Natives and Digital Immigrants as exhaustive categories, we observe that there is no *gap* between generations but rather *gradients* of different usage patterns.

We advance, too, an argument that there may be an emerging global culture of young people using technology in similarly sophisticated ways. This is the least strong of our assertions; there is too little in the way of sound data to support this claim, but it seems a plausible hypothesis to test. At least among young people from the elite in the societies where we spent the most time (Bahrain in the Gulf; Switzerland in Europe; China in East Asia), there are aspects of a common culture that is emerging in terms of how they use these technologies. We suspect that it does break down along lines of socioeconomic status (SES), as it does in the United States,²² and of course these are numerous local differences based on culture, history, language, and other factors.²³ Despite these limitations and differences, there remain great opportunities for cross-cultural understanding in this common culture that is emerging among people around the globe if this hypothesis proves to be accurate.

As a brief statement of our methods: most of our claims rest on the findings of the studies of the growing group of highly networked researchers (and particularly researchers networked through the Digital Media and Learning [DML] Research Hub, www.DMLcentral.net) asking questions about youth media practice from a social scientific perspective. Most of our close colleagues focus on the United States, an obvious limitation. To complement what we

²¹ *Id.* at 6–9.

²² See Hargittai, *supra* note 13.

²³ See Victoria J. Rideout, Ulla G. Foerh, & Donald F. Roberts, A KAISER FAMILY FOUNDATION STUDY – GENERATION M2: MEDIA IN THE LIVES OF 8-18 YEAR OLDS (2010), <http://www.kff.org/entmedia/upload/8010.pdf>; SONIA LIVINGSTONE & L. LESLIE HADDON, EU KIDS ONLINE: FINAL REPORT 14 (2009), [http://www2.lse.ac.uk/media@lse/research/EUKidsOnline/EU%20Kids%20I%20\(2006-9\)/EU%20Kids%20Online%20I%20Reports/Home.aspx](http://www2.lse.ac.uk/media@lse/research/EUKidsOnline/EU%20Kids%20I%20(2006-9)/EU%20Kids%20Online%20I%20Reports/Home.aspx).

read in the work of our collaborators and colleagues in the field, we conducted research with a diverse group of young people in terms of age, socio-economic standing, and technological ability. Our analysis here draws in part on original research conducted in the greater Boston area. Our goal was not to undertake a comprehensive study, but rather to take an in-depth look at the way some young people are relating to information and one another on topics such as privacy, creativity and learning, as well as gain insight into the discourse taking place among students on issues of copyright and piracy. We also spoke with informants, using the same methodology, in three other parts of the world: in Switzerland; in Bahrain; and in Beijing and Shanghai. Other researchers have used our protocols to carry out similar studies, for instance in Japan. It is important, of course, to address up front the limitations of our study: we explored youth discourse surrounding their use of digital technologies within a particular and limited population, one not representative of digital natives in the US as a whole. While our findings begin to uncover and describe how youth are approaching these issues and the complex dynamics at hand, it is not possible to extrapolate our findings to the greater United States population at large. We rely heavily and primarily, here and elsewhere, on the findings of other researchers using a broad range of methods, from the highly qualitative to the quantitative.

II. SPECIFIC ATTRIBUTES OF THIS POPULATION OF TODAY'S YOUTH

There are a series of common practices and associated attributes we refer to when we talk about those in the population of Digital Natives. These attributes are often familiar to many educators, parents and librarians, which is part of the reason why the term resonates for some people thinking about issues of youth and technology. We will discuss four of the most common practices to set the stage for the challenges and opportunities: using technology to express identity, multitasking (or "task-switching"), expecting information to be in a digital format, and moving from consumers to creators of publicly accessible information.

The first practice is the extent to which Digital Natives use technologies in ways that express their identity. They will express themselves in social networks like Facebook and MySpace, environments in which they are shaping an identity. As one 17-year-old female high school student in the northeast of the United States told us, "I personally am like, you know, I'm very careful about what I put on MySpace and Facebook in like making sure that that's what—

that's who I feel I am."²⁴ They choose how to express themselves by the photographs that they upload to these social networks, but it is important to note that these expressions are not distinguished from creating their identity in the offline space.²⁵ The notion that there is a separate world, a separate set of online identities, makes little sense to many of those growing up immersed in digital technologies.

For youth in a digital era, it all converges, by and large. It is not online life and offline life—it's just life. It is where social life is playing out and often times the identity-shaping happens in a way that is identical to the kind of traditional role-playing young people have been carrying out in the process of shaping their identities. The difference is perhaps the multiplicity of identities formed in these online spaces.²⁶

Though Digital Natives think that they are creating multiple identities in this converged space, an ability for the onlooker to see all of these identities at once. This paradox is an interesting, and profound, change made possible by the use of Internet and social forms of digital media. Previously, if onlookers had to find and look at these identities seriatim, then the identities would not be visible all at once, and onlookers could not see multiplicity. Though these young people may think there is more control and experimentation in terms of their identities today, it may be that they have far less ability to maintain multiple identities than they think.

The second practice of Digital Natives, which feels familiar to many who teach young people, is multitasking or switch-tasking.²⁷ Very often, when educators talk about this issue of young people and technology, this is the first thing mentioned. Some young people always have iPod earbuds in their ears as they walk across the street (and we fear we might run them over because they cannot hear us). They may be talking on their cell phone at exactly the same time. In our law school classes, when we look out on groups of students (and of course, most Harvard Law School students will come from backgrounds where they have access to technology and strong support structures), we see a sea of laptops, with few if any of the students looking up at the teacher.

²⁴ Unpublished focus group data (2007).

²⁵ PALFREY & GASSER, *supra* note 1, at 19.

²⁶ *Id.* at 20.

²⁷ Amanda Lenhart, Paul Hitlin, Mary Madden, Teens and Technology, PEW INTERNET & AMERICAN LIFE PROJECT 22 (July 25, 2005), <http://www.pewinternet.org/Reports/2005/Teens-and-Technology.aspx>.

In the context of a school environment, it is a very different experience to look out on a group of people who are looking into their mobile device or laptop than it is to look out on a group of people looking at you as the teacher. In such cases, the term Digital Natives is particularly appropriate to describe how us teachers relate to students with certain attitudes towards technology. As teachers, we have the experience of seeing students in the audience smirking and laughing, and realizing they are instant messaging one another back and forth. But they are often doing more than one thing at once—or, more accurately, switching back and forth between various tasks one after another (“switch-tasking” rather than multitasking).

In our work as teachers, we have made a practice of occasionally sitting in the back of classes taught by our colleagues to observe the teaching and the activities of students online during class. It is an illuminating experience. From the back of the room, one can see what most students do on their laptops during class. One such recent class was an early iteration of what is now a required first-year course for students at the Harvard Law School. What we observed, for anecdotal purposes only, was a mix of practices. For about the first twenty minutes, we saw only Word documents on the screens. Students were actually taking notes. And then, at about a minute twenty-one, students began to deviate in their behavior. Different screens started coming up; it would be, for some students, their email, for others, instant messaging. At about minute forty-one, the most popular thing was people looking at slide shows the ball gowns Michelle Obama had worn for the Inauguration of her husband, United States President Barack Obama. By the end of the class period, we saw online shopping.

We do not need major pedagogical studies to know that if students are doing their email while their professor is trying to teach them the rules of evidence, they are not going to learn as well as if they are paying full attention to the class material. Teachers know that distractions in the classroom, whether digital or not, tend not to be great for learning.²⁸ But where we have to dig deeper is to understand what students are in fact doing when they are engaged with digital media in the classroom. A lot of what is actually happening is not multitasking, but this notion of “task-switching” or “switch-tasking.” Young people who use technology extensively can actually become quite good at switching between different things at different points and doing all tasks effectively.

²⁸ E.g., Carrie B. Fried, *In-Class Laptop Use and its Effect on Student Learning*, 50 *COMPUTERS & EDUCATION* 906–14 (2006).

We are not condoning, through bringing up task-switching, looking at Michelle Obama's ball dresses during evidence class. That is not the point. The point is that there are processes taking place in classrooms that may not be as bad as we, as educators and librarians, may think in terms of learning. There might even be things going on that we could embrace and use to advantage, to improve the system of education. Some behaviors that we see in young people, related to their digital media use, are things we want people to be able to do. Students exhibit a broad range of behaviors, inside and outside of class, that affect their learning. As teachers, we need to be open-minded, seeking to find ways to limit behavior that constrains our students' learning while building upon their creative and innovative learning practices.

The third practice—and the associated attitude—of these young people involves their relationship to digital media. Many young people presume that material they interact with is going to be in a digital format in most cases. On a recent vacation, we had forgotten to bring a digital camera, so we bought a disposable camera at a souvenir store. One of our children took some pictures, turned the camera over and said, "Mom and Dad, I don't get it. Where is the picture on the back of this thing?" She did not expect, and was confused by, the absence of a digital image on the back of the camera. She is not accustomed to having to print out a roll of film, bring it to a store, and only get the prints back three days later after paying twenty dollars. Images are presumed to be digital, something to delete or upload or manipulate.

The same is true of video. Children love to look up silly videos of sneezing pandas on YouTube. For some children, they would much rather type in "sneezing pandas" in YouTube than watch television because a three-minute video of baby pandas in China is far more entertaining to her than anything on television. It is not surprising that in 2008, YouTube surpassed Yahoo! and became the search entity with the second-most number of search queries in the U.S., second only to Google.²⁹ It is still too early to tell whether or not online video,

²⁹ In the November 2008 ranking from comScore, Inc., YouTube first overtook Yahoo to become the search entity with the second-most number of search queries in the U.S. YouTube has remained in this rank since. While YouTube is owned by Google Inc., comScore considers "Google Sites" as a "core search entity," while Google and YouTube are "expanded search entities." The comparison made is between the Google expanded search entity and the YouTube expanded search entity. As a whole, Google sites had 63.5% of all searches in November 2008, followed by Yahoo! Sites with 20.4%. Press Release: comScore Releases November 2008 U.S. Search Engine Rankings, (Dec. 19, 2008), http://www.comscore.com/Press_Events/Press_Releases/2008/12/US_Search_Engine_Rankings.

or television programming accessible on-demand online, will replace the television set. The Nielsen Company has been measuring trends about the relationship between television and the Internet since 2008, and the results from this period seem to indicate not.³⁰ But this brings us back to Digital Natives not referring to all youth. For one of our children, the new medium of the Internet plays part of the role television has played for those of us who grew up in another era. She expects video to be delivered in a digital format over which she has greater control. Data show that this is true for some kids, but not for others, in this digital era.

In the context of print, we observe similar changes in expectations. Books that we write today are not just available on the shelf; they are often searchable within Google if they are digitized. The presumption is that one can process new works through digital media; search through them using search engine algorithms, and share them with peers over the Internet as well instead of by passing on hard copies. The materials are meant to be social.

One of the key elements of this iteration of the web—Web 2.0, or the read-write web, or the social web—is that materials are often shared in digital public places and are visible to any potential onlooker.³¹ Digital Natives take photographs on smart phones or PDAs, upload the images to Flickr, Photobucket or Facebook and tag them with the names of the friends who appear in those images. The presumption is always towards sharing information and knowledge with others. The notion of Wikipedia makes this idea very clear, too; the idea of a community working together on collective knowledge

³⁰ 2 THE NIELSEN COMPANY, A2/M2 THREE SCREEN REPORT (3d quart. 2008), http://blog.nielsen.com/nielsenwire/wp-content/uploads/2008/11/nielsen_three_screen_report_3q08.pdf; 3 THE NIELSEN COMPANY, A2/M2 THREE SCREEN REPORT (4th quart. 2008), nielsen.com/site/documents/3_Screens_4Q08_FINAL.pdf; 4 THE NIELSEN COMPANY, A2/M2 THREE SCREEN REPORT (1st quart. 2009), http://blog.nielsen.com/nielsenwire/wp-content/uploads/2009/05/nielsen_threescreenreport_q109.pdf; 5 THE NIELSEN COMPANY, A2/M2 THREE SCREEN REPORT (2d quart. 2009), http://blog.nielsen.com/nielsenwire/wp-content/uploads/2009/09/ThreeScreenReport_US_2Q09REV.pdf; 6 THE NIELSEN COMPANY, A2/M2 THREE SCREEN REPORT (3d quart. 2009), http://blog.nielsen.com/nielsenwire/wp-content/uploads/2009/12/Three-Screen-Rpt_US_3Q09REV.pdf; 7 THE NIELSEN COMPANY, THREE SCREEN REPORT (4th quart. 2009), http://in.nielsen.com/site/documents/3Screens_4Q09_US_rpt.pdf; 8 THE NIELSEN COMPANY, A2/M2 THREE SCREEN REPORT (1st quart. 2010), http://en-us.nielsen.com/content/nielsen/en_us/insights/nielsen_a2m2_three.html.

³¹ boyd, *supra* note 3.

creation. It is a shared environment and a social environment when it is at its most successful.

The fourth practice, and the one that makes academics the most excited, is the related notion that some young people are not just *consumers* of information, but in some cases they are also *creators* of information.³² The move from consumers to creators is not complete, but we see great promise in the trajectories involved. In our research, we came to the project with a normative prior: we hoped to find everybody creating remix videos on hot political issues on Saturday afternoons, but this turns out not to be true. There are many young people without the technical knowledge of how to create such media, and there are even plenty of couch potatoes out there. Still, according to a Pew study, a full *half* of teenagers have created content. They have done things such as “create a blog; create a personal webpage; create a webpage for school, a friend, or an organization; share original content they created themselves online; or remix content found online into a new creation.”³³ But the “participation gap” again emerges; teens in urban areas and with access to high-speed connections are most likely to be content creators. The practices of certain Digital Natives help us imagine a world where anyone can learn to become a creator of information or code that can help to transform their lives and societies. And even less creative forms of content creation, such as posting status updates on popular social networking sites or leaving comments on a friend’s blog, are likely to have a positive effect on information literacy skills of young users as recent information quality-related research suggests.³⁴

A variant of this creativity, which we see in the classroom, is that some people are excellent at working together and working in teams. This is a skill that we in legal education (and many other fields of education besides) have failed to nurture. As legal educators, we prepare lawyers to go into the practice of law; with very few exceptions, this means working with a group of other lawyers on a case. It is very rare for a lawyer to spend all her time sitting alone in a room, drafting a response to a judge in a legal matter. That lawyer is much more likely to be working with a senior associate and a partner

³² See also Doc Searls & David Weinberger, *Markets are Conversations*, in THE CLUETRAIN MANIFESTO: 10TH ANNIVERSARY EDITION 75–114 (2009), available at <http://www.cluetrain.com/book/markets.html>.

³³ Lenhart & Madden, *supra* note 4, at 1–2.

³⁴ GASSER ET AL., *supra* note 7.

and five other junior associates, or perhaps a smaller team at the public interest equivalent. Despite this reality of legal practice, we almost always teach young people to learn on their own in the quiet of the library carrel and then demand that they take an exam on their own. We round out the process by giving them a grade with no feedback. This is where Digital Natives connect with legal education: when we put skilled students into a team-based environment, especially in ways that are mediated by digital technologies, they can come up with wonderful means of working together and putting together terrific work products. They are extremely good at using lightweight collaboration tools such as Google Docs or Etherpad, or wikis, or video-editing software.

Our students are often unhappy at first when one assigns them to perform a group project. They immediately realize (accurately) that they are likely to be faced with a free-rider problem: one of their classmates will not work as hard and yet all of them will get the same grade. But in teams at law firms or in any other work setting in our field, that will happen, too, and it usually works itself out over time. We find surprising results when we get young people to work in creative teams in ways that use digital technologies, inside and outside of the classroom, inside and outside of the library. We need to find ways to leverage the skills possessed by our students. Technologies can help meet our pedagogical goals if we are creative and clever.

III. PROBLEMS ASSOCIATED WITH YOUTH MEDIA PRACTICE

What are the problems potentially associated with these changes in culture, practices, and relationships to information? We raise five such concerns: safety, privacy, intellectual property, information quality, and information overload. These problems are real, but they are not quite as crisp, or as different from what we've seen before, as they are made out to be in the mainstream media. There are many myths about these problems we seek to debunk. These problems are more general than the discussion of Digital Natives; in fact, we might label an individual as a Digital Natives based on her or his ability to manage such problems far more skillfully than her or his peers.

First, take safety. The idea is to figure out where the safety issues are for kids, which are real concerns in the United States, and then whether we could bring technologies to bear on them to help make kids safer.³⁵ A commonly articulated fear³⁶ is associated with the

³⁵ Schrock & boyd, *supra* note 6.

premise of the television program, “To Catch a Predator”, the notion that young people will meet someone on Facebook or MySpace and then meet that person in offline space, where terrible harm is done to them.³⁷ Unfortunately, this does happen. It is terrible when it does. It is a parent’s worst nightmare; we do not diminish the real risk of it happening. What we have to be honest about, and learn from, is that it does not happen more in a digital era than it did before; nor are all young people equally at risk of it happening to them. The data show that the overall risk of this happening, despite the advent of the Internet, is falling, not rising.³⁸ It is not the case that the Internet or digital media has made this problem spiral out of control and become an epidemic. The problem is largely the same as it was before the digital era. Known cases of sexual assault involving predatory older strangers are very rare; as uncomfortable as it is, Internet-initiated sex crimes where the adult perpetrator is known to the youth victim is still a much larger problem³⁹

What has changed in the digital era is not the prevalence of predation by strangers occurring, but rather that sometimes the place where the first meeting occurs is no longer the playground in the real world. The public spaces in which our youth are growing up has moved from physical environments to these online environments in which kids are shaping their identity and expressing themselves and so forth. It also turns out that the kids most at risk are kids who are most at risk in real space, too. They often have difficult home lives or other problems that they are fighting.⁴⁰ It is important that we focus on the extent to which this is not all that much different because of the Internet. It may be that the first meeting happens online, but the core problem—of sexual predation—is fundamentally the same.

There is another safety issue, but this one has a basis in some of the data collected about youth media practices: some studies show an uptick in bullying that is happening online.⁴¹ In other words, some

³⁶ Alice E. Marwick, *To Catch a Predator? The MySpace Moral Panic*, 13 FIRST MONDAY (2008), <http://firstmonday.org/htbin/cgiwrap/bin/ojs/index.php/fm/article/view/2152/1966>.

³⁷ PALFREY & GASSER, *supra* note 1, at 83.

³⁸ Schrock & boyd, *supra* note 6, at 14.

³⁹ *Id.* at 15.

⁴⁰ *Id.* at 46.

⁴¹ *Id.* at 22–23.

researchers argue that the extent to which young people, peer-to-peer, are doing harm to one another through networked digital media is on the rise.

There are a couple of caveats to this apparent increase in harms. First, much turns on how we define bullying; the bullying described in these studies relates to psychological harms inflicted by peers, not the iconic image of the lunch-money-stealing bully.⁴² Second, changes in data collection methods might also have an effect.⁴³ But most importantly, for the first time, adults can see some of these harms happening. Two decades ago, parents could not see bullying as it happened on the playground. Now, if these acts take place in a social network online, there is potentially a digital record of communication for adults to see either after the fact or even as it happens. The new online visibility may be affecting reporting: when many studies show a clear uptick in the occurrence of bullying online, the question is whether what is shown is a real rise in bullying or if in fact it is just a transfer of the bullying that is always happened in real space into these online environments where it is more visible and measurable. If we were to see a rise in incidences of online predation, we might present the same critique, but it so happens that debunking the myth of increased predation is easier because the data already shows a decrease in incidences. Still, this data is not unambiguous either; measuring the prevalence of *any* online harm is difficult because so many incidences may go unreported.⁴⁴ There is no doubt that real harms are being caused; but we should keep in mind that it is far from clear that there is an overall increase in these harms now that interactions are digitally mediated.

The second issue that comes up is privacy. One of the myths we take up in our research is the idea that “young people don’t care about privacy.”⁴⁵ There is evidence that many young people do share too much information about themselves in these online environments. But it is not the case that they don’t care about privacy.⁴⁶ They do care

⁴² *Id.*

⁴³ *Id.* at 9.

⁴⁴ *Id.* at 60.

⁴⁵ PALFREY & GASSER, *supra* note 1, at 53–82; *See also* Marwick, Diaz, & Palfrey, *supra* note 6, at 4.

⁴⁶ danah boyd & Eszter Hargittai, *Facebook Privacy Settings: Who Cares?* 15 FIRST MONDAY (2010), <http://firstmonday.org/htbin/cgiwrap/bin/ojs/index.php/fm/article/view/3086/2589>.

about privacy; certainly, they care about privacy from their parents and teachers and other authority figures.⁴⁷ They are not always equipped, though, with the skills to protect their own information in the way that they would like. Our colleague danah boyd, in particular, has done a lot of compelling work on this topic. Her work shows the extent to which young people often make a series of common mistakes when they are posting material online, like the unintended audiences that may get access to their postings or the persistence of the information over long periods of time.⁴⁸ That is, these are “mistakes” in the terms of the young people themselves, actions that frustrate their own goals and preferences, and not something we are imposing with our interpretation or something we need to teach them to care about.

The one positive note on this front is that young people we talked to who had been online longer are much smarter about it. In fact they are much smarter than many adults are about privacy. We perceive that this is a persistent problem only insofar as not all youth have the sophistication of those identified as Digital Natives. Kids who are given the proper scaffolding—through the support of education and parenting and the work of technology companies—will come to realize the risks they are running associated with their behavior. We believe that youth can get much smarter about using privacy controls; this may come about partially through young people becoming better at the hiding from adult benefactors the information that these benefactors would like to oversee and monitor, but it also means that youth will be able to effectively avoid the scenarios their adult benefactors fear without needing intervention and regulation from adults.

The third problem is the notion that young people do not pay for the information and the media that they enjoy online.⁴⁹ The prevalent view is that when it comes to music and movies, for instance, young people tend to go online and steal them. Unfortunately, it turns out that’s not exactly a myth we can debunk. This is an example of a practice that characterizes not just those we would identify as Digital Natives, but in fact most young people: according to Pew data from

⁴⁷ Marwick, Diaz, & Palfrey, *supra* note 6, at 14–15.

⁴⁸ boyd, *supra* note 3.

⁴⁹ PALFREY & GASSER, *supra* note 1, at 131–53.

2005, half of online teens⁵⁰ admit to downloading music, with another third admitting to have done so in the past, giving a total of two-thirds of online teens who download music.⁵¹ And that's only the number of teens who admit to doing so. We see here a dramatic difference between youth and older populations: the numbers of online older users who admit to downloading music is 40% for users aged 18-29 (note: when this study was conducted in 2005, anybody younger than 25 would have been born after 1980), 18% users aged 30-49, 13% for users aged 50-64, and 6% for users aged 65 and above.⁵²

In our focus group research, most of the young people we spoke to knew that it was unlawful to steal the music online on LimeWire or the other peer-to-peer services they used. They made clear to us that they knew what they were doing was a violation of the copyright laws of the United States and most other countries.⁵³ We do it anyway, they said. We are "sticking it to The Man," they told us. There was this sense, consciously, that this practice was something that everybody did. And while they perceived their acts to be unlawful, they also perceived them to be justified. This attitude may not be unique to younger users, and older users who download music may well have similar perceptions.

The area where there was much less knowledge, and in fact outright confusion in most cases, was remixing. We asked them questions about what they do with the copyrighted materials of other people in their own work. Could they make new works with the copyrighted materials of others in the context of a museum or library or school? This is something that we are very interested in as a matter of public policy. We are eager to see more of this "semiotic democracy" emerging—the practice of the remaking of culture by young people. What is clear is that young people often do work other people's materials into their own, but they are extremely confused about the law in this area. They have no idea what their rights are to remix copyrighted works. We saw the same dynamic in talking to parents and teachers. They are mystified, too, as to what the rights of

⁵⁰ "Online teens" are 8 million teens out of the total 12 million U.S. teens. Lenhart & Madden, *supra* note 4, at i, 1.

⁵¹ Lenhart & Madden, *supra* note 4, at iii, 10.

⁵² MARY MADDEN & LEE RAINIE, PEW INTERNET PROJECT DATA MEMO: MUSIC AND VIDEO DOWNLOADING MOVES BEYOND P2P, PEW INTERNET & AMERICAN LIFE PROJECT 7 (Mar. 23, 2005), <http://www.pewinternet.org/Reports/2005/Music-and-Video-Downloading.aspx>.

⁵³ PALFREY & GASSER, *supra* note 1, at 137.

remixers are, and they are often just as mystified as to whether the practices of their children and students are lawful or unlawful. Copyright used to apply only to those who created maps, books, and charts 200 years ago. Now it applies to everybody, particularly our kids, as they are going through life in this digitally mediated way—and yet the doctrine of copyright is only more complex, not less so, than it was when it applied to many fewer people.⁵⁴

The fourth issue is the problem of the quality of information in a digital-plus world. Quality—or closely related concepts such as credibility, reliability, trustworthiness, or authority—is something plainly on the minds of librarians. We know that young people do not wake up first thing in the morning and read the *Wall Street Journal* or the *Washington Post* cover to cover while they drink a cup of coffee; likewise, we know they don't come home at the end of the day to turn on the evening news, to watch Walter Cronkite or Katie Couric tell them what had happened over the course of the day. Those sources of information traditionally presented by authority and social norms as “high-quality” are no longer the only, or even necessarily the dominant, sources of information for young people. Also, the point is not that young people should turn to the *Wall Street Journal* or the *Washington Post* as automatic high-quality source. The point is that these are no longer the only accessible sources. There are a greater number and a greater variety of sources for librarians to teach young people how to analyze, but it takes a different set of skills to navigate this more complex information environment. We know also that when somebody is looking up something for a project as a research matter, they rarely go first to the physical library. They go to a teacher or a friend or to Google first; put another way, they are more likely to “Ask Jeeves” than to ask a reference librarian.⁵⁵ When they perform a search, many of the young people we talked to would head for the Wikipedia page on their topic after using a search engine. When they got to the Wikipedia page, we then saw a range of practice. We saw young people on one end of the spectrum who would cut and paste what they saw in Wikipedia, stick it in their term paper, and hand it in. One hopes that they did not get a very good grade; but from their perspective, at least it was an efficient way to get the work done. On the other end of the spectrum, we found skeptical kids who would say that they didn't trust anything they found on Wikipedia, because their classmate may have just been there two minutes before and

⁵⁴ *Id.* at 138.

⁵⁵ *Id.* at 239.

introduced a false fact just to mess them up.⁵⁶ This issue highlights, in particular, the importance of information literacy—the ability to recognize what information is most effective for a particular need, and to find such information online. It turns our attention again to the idea of the “participation gap;”⁵⁷ there is variation in the skills that young people bring to the digital world, and these skills are growing in importance with each passing year.

The last of the issues is information overload: the feeling of being overwhelmed with the amount of information with which one is confronted. While information overload is not in itself a disorder, it can cause anxiety that has physical effects.⁵⁸ Young people get a great deal of information from a broad range of sources, often spending an enormous amount of time connected to the digital world, and there is the possibility that during that time they will experience information overload. Denise Agosto has studied how experiencing overload may cause a young person to give up a task. While this might cause him or her to get off the Internet and spend a little bit of time disconnected from the digital world, we should not see this as a good thing, as it also means a less-than-optimal resolution for the young person’s task.⁵⁹ The issue here is the same as the quality issue: our students need the skills to cope with this new, and often intense, means of interacting with news and information.

IV. OPPORTUNITIES FOR A BRIGHTER FUTURE

We promised to conclude with a positive outlook. Much of this story is hopeful. There huge opportunities in what young people are already doing in these online public environments. Young people are expressing themselves and interacting with one another in ways from which they learn. Essential to this story is that we figure out how to impart good media literacy skills—the ability to sort credible

⁵⁶ *Id.* at 160–61.

⁵⁷ Jenkins et al., *supra* note 17.

⁵⁸ Lynn Akin, *Information Overload and Children: A Survey of Texas Elementary School Students*, 1 *SCHOOL LIBRARY MEDIA QUARTERLY* 1–11 (1998), available at <http://www.ala.org/ala/mgrps/divs/aasl/aaslpubsandjournals/slmrb/slmrcontents/volume11998slmqo/akin.cfm>.

⁵⁹ Denise E. Agosto, *Bounded Rationality and Satisficing in Young People’s Web-Based Decision Making*, 53 *JOURNAL OF THE AMERICAN SOCIETY OF INFORMATION SCIENCE AND TECHNOLOGY* 16, 22–23 (2002).

information from less credible information online; to share only what you mean to share about yourself; to avoid violating the intellectual property of others; and so forth—to young people across the board, such that they are learning good and positive things through these interactions. The New Media Literacies Project is a great example of this potential. At the Harvard Graduate School of Education, Howard Gardner's Project Zero has an initiative called Good Play that is another great example of this, as is Common Sense Media. There are an emerging series of strong curricular elements now for how we can teach kids to navigate these digital environments in healthful ways.

On the intellectual property front, just as there are concerns, there is also the creative side of what kids are doing online. Some of them, the most sophisticated kids, are making extraordinary things online. Whether it is on their social network profiles, or through podcasts, or creating and remaking videos, these young people are shaping our—and their—culture.⁶⁰ By and large, this practice is something that will be good for global society, if we embrace it in the right ways.

On the quality front: this is the place where librarians and teachers are most crucial.⁶¹ It is the case that there are many more sources of information that kids can turn to in their everyday learning. It is tricky to figure out how to teach them to navigate this complex environment—but it is also a huge opportunity. Young people also have the chance to become *involved* in the making of culture and the making of the knowledge base. They have a chance at a much richer, much more participatory way of learning and interacting with the world than their grandparents did. It is not obvious what kinds of institutions we need to build to be intermediaries here between kids and information. It is obvious, though, that they love these social information platforms. They love YouTube and Facebook and they do make interesting things when they are given the opportunity and the encouragement and the skills to do so.

On information overload: this is much more an opportunity than it is a problem. Again, the importance of librarians and museums and curators and archivists, along with all parents and teachers, is obvious in this context. We need new kinds of guides to young people, to give them handholds in terms of what they ought to be looking for and what they ought to discard as less useful information. We should embrace the extent to which the global Internet provides the chance to create the digital Library of Alexandria that we have dreamed about. It

⁶⁰ PALFREY & GASSER, *supra* note 1, at 111–29.

⁶¹ *Id.* at 181.

is astonishing that from any place in the world one can get access to the store of the world's knowledge—and in fact to add to it—through a web browser or even a mobile device. It will take the success of projects like Brewster Kahle's Internet Archive, Carl Malamud's Law.Gov, and many related experiments in libraries and other cultural institutions around the world to make it so. But the opportunity lies plainly before us. We are incredibly hopeful that, before too long, we can create a global information environment that is vastly richer than the one we have today.

The net result of this research is that there is more on the opportunity side of the ledger than there is on the challenge side, especially in the context of learning, innovation, and activism. What matters most is not the labels—whether Digital Natives, Millennials, Digital Youth, Youth with no modifier at all, or otherwise—we use to describe these practices of youth, but rather whether we are doing our research carefully and working together, in the public interest, based on sound findings. The language that we use matters, of course; the critics of these terms make sound and important points. Most important is that we share a common commitment to understanding of what is going on with new media practices and, in turn, that we work together to seize the opportunities, and mitigate the challenges, associated with media practices of youth and adults alike.

It will take a lot of hard work, hand-in-hand with young people, to make visions of a brighter future, in a hybrid age of digital and analog life, a reality. The role of teachers, parents, and information professionals—whatever the next name of a librarian or museum curator will be—is only growing in this fast-changing environment. We need to strive to understand youth (and adult) practice with respect to information as it changes based on sound data; to chart a common path forward; and then work hard, together, to make it come to pass. With the help of our children and our students, we can design and craft a much better information environment not just for today's youth, but for society at large and for future generations.