

Introduction

The new technology revolution is neither global nor cross-cultural. It is primarily produced and shaped by powerful corporations and institutions from Europe and North America, with various collaborators across the world. Yet we treat commercial platforms such as Facebook, Twitter, or Google today as if they were public spaces and systems, ignoring that they must remain primarily accountable to their shareholders. These commercial priorities, rather than diverse publics and cultures, shape how these tools are developed and the agendas they serve. It is high time to think about how new technologies can support people across the world. What we have today is a highly *asymmetric* diffusion of digital tools and systems.

Ninety-nine percent of the world's population remains excluded from most decisions made around the future of the Internet and digital technology. Billions of people are therefore treated as passive users. Their creativity and agency is restricted to adapting, appropriating, or hacking technologies that already exist. Despite promising movements in free software and open source, even many first-world technology users are expected to comply with platforms that gather and monetize data for their creators. If these users choose not to use these systems, they may face other inequalities because so many political, economic, and social operations have moved online.

This book is concerned with what digital technologies, such as the Internet, mobile phones, or social media platforms may mean when reimagined from the perspective of diverse cultures and communities across the world. No definition of “technology” should be limited solely to digital media. Communities across the world, past and present, have always developed and crafted innovative tools, systems, and networks that shape social and cultural life.

This book focuses on digital “new media” technology due to its increased importance in shaping the economic, cultural, social, and politi-

cal dynamics associated with globalization. On the whole, globalization has reinforced inequality through the way new technologies have been deployed. While new technologies increasingly shape labor, economics, and politics, they are rarely designed to reflect the perspectives of those at the bottom of these “food chains.”

Digital technologies are not neutral. They are *socially constructed*—created by people within organizations, who in turn approach the design process based on a set of values and presumptions. No matter how uncomfortable it may be, we must lose the urge to universalize or naturalize new digital systems such as search algorithms, social media environments, or data storage “cloud” platforms.

We cannot simply trust our gateways to the digital world as if they were democratically designed platforms, because they are not. Instead, we can imagine alternatives that are noncommercial, public, and conscious of cultural diversity. By uncritically evangelizing language such as “cloud,” “open,” or “Internet freedom,” we block inquiry into what may be. Across the world, we can consider alternatives around how networked technology can better support our families, communities, and cultures. I think here of the inspiring words I recently listened to from Black feminist scholar and activist Angela Davis, who described the violence of the “tyranny of the universal.” In this lecture that I attended upon Davis’s first visit to Chile in over forty years, she explained that many concepts we treat as universal, or perhaps “natural” or “normative,” are in fact social and political constructions which block alternative ways of imagining the future. In this spirit, I would like us to avoid thinking of the Internet or new technology as universal and instead imagine alternative democratic futures for technology that serve the agendas of the traditionally marginalized and silenced.

Whose Global Village? argues for the importance of collaborations between technology developers, researchers, entrepreneurs, activists, and professionals with diverse communities, cultures, and users to reimagine how to design and deploy new technologies. Because social media, mobile, and Internet platforms are increasingly important in shaping how we communicate, it is all the more important to consider new voices as we design and develop these tools. In so doing, we can design and develop new technologies that reflect the diverse values and practices of user communities across the world.

I recognize the incredible power of the current Internet to make information available and accessible to people across the world. Many social media technologies have made transactions more efficient, improved people's ability to find information, and provided users with a feeling of "connectivity." Yet we should see newer and older technologies alike for what they are—tools created by people in particular places at particular times. In this sense, we must not think of new technology as fixed but open to voices and perspectives that otherwise remain confined to the sidelines.

The different examples I share across this book reveal the power of community-created technologies and networks. Together, they suggest the provocative possibility of an Internet that no longer is unified but instead "splintered" into distinct community spaces and systems. In the chapters that follow, I discuss the early intentions behind the Internet as a decentralized network, arguing that it would respect the autonomy of different users, presenting each with equal opportunity to share their voices and perspectives.

It is important to remember these histories to recognize that the Internet today is also a contested space. The visions of free software or antisurveillance activists remain part of our "technology conversation." Yet they also often seem to be part of an uphill battle within an environment today where the vast majority of data flows through networks and servers administered by a relatively small group of corporations.

From the monetizing of user content to make the rich richer to surveillance run rampant, today's Internet has not delivered on its decentralizing or democratizing vision. We thus live within an environment where those with little power are forced to participate in systems far removed from their control. At stake is not merely a question about equal power and voice around the design and development of technology, but the issue of whose cultural voices are included or excluded.

This does not mean, however, that fragmentation must be the path forward for the Internet. It too is dangerous. A fragmented Internet runs the risk of isolating cultures and societies from one another, making it impossible to come together around global issues such as climate change, conflict resolution, or human rights. While this book's chapters primarily stress the potential of collaboration, they also reveal what can be gained when we *balance* the local and the global in ways that respect

the sovereignty of grassroots voices in informing global communication. We can think of a future where technologies serve a range of visions, values, and purposes that diverse communities hold and not just those of networked elites across the world.

Whose Internet?

In thinking about our digital future, it is important to remember the social and cultural values that make us human. This is all the more important as we move ever forward with initiatives to introduce new technologies to reach what Google cofounder Larry Page¹ and Nicholas Negroponte, founder of the MIT Media Laboratory and One Laptop Per Child project,² describe as the “last billion.” This term homogenizes those who lack Internet and mobile phone access. Perniciously, it implies that the indigenous peoples of the Andes or the herdspeople of the Kalahari desert simply cannot wait to receive the blessings of Western technology. Why should we be so presumptuous about who these people are and what they need?

It is all the more imperative to think of alternatives as we arrive at a moment where biology and technology are synthesized. The rollout of Google glasses and Facebook’s purchase of the Oculus Rift, an immersive virtual reality headpiece that covers one’s eyes, are a reminder of feminist scholar Donna Haraway’s argument that our bodies have long been entangled with technology.³ It is a mistake to blindly endorse these efforts when as passive users we are left with little control and no power over our technobiological futures.

It is troubling today that we blindly embrace technologies that are constituted by databases, classification systems, and algorithms that remain opaque and invisible. They merely sort through information that has already been created rather than assist the process of creating, communicating, or reflecting.

Many conversations around the “digital revolution” reflect a *recency bias*. They focus on new tools of innovation while leaving aside questions of history and context. For example, many assume that social networks were born with Facebook, while failing to recognize that social network analysis has existed within the social sciences for decades. Similarly, we often think of Facebook as a global and universal



Figure 1.1. Facebook CEO Mark Zuckerberg lauding the powers of virtual reality at the Mobile World Congress in 2016. Source: www.popsci.com.

technology without recognizing that it was first designed for students at Harvard University.

Asked to identify a key ingredient of the web, Jonah Berger, a professor from the University of Pennsylvania's Wharton Business School stated, "What makes the Internet go around? . . . Cats!" While I share Berger's amusement at the meme of cat pictures and videos all over the Internet, it also leaves me concerned. Why have so many of our Internet-facilitated conversations devolved into activities such as cat picture sharing? What may be lost in the process? I do not mean to dismiss the power of entertainment but to question whether this should really anchor what makes the Internet "go around."

This book's concerns are not only limited to how new technologies are used and designed but also include the constraints on the visibility and accessibility of the Internet. Facebook has recently partnered with Internet.org in a seemingly benign cause devoted to bringing Internet access to the developing world through the use of unmanned drone technology. Yet what Internet is being made available to these new users? Members from sixty-seven activist groups in May 2015 signed an open letter to Facebook founder and CEO Mark Zuckerberg stating that this Internet "is improperly defining net neutrality in public statements and building a walled garden in which the world's poorest people will

be only able to access a limited set of (Facebook approved) websites and services.”⁴ And now the government of India has joined the protest.

Facebook’s free Internet provides a laudable service but it does so without supporting Internet freedom. Facebook, rather than the culturally and globally diverse populations it claims to unite, has complete power to determine what aspects of the Internet are made visible or accessible to billions of potential users. This need not be the direction by which new technology spreads across the world.

Whose Global Village?

This book’s title starts with the question “Whose Global Village?” in a reference to technology theorist and futurist Marshall McLuhan. McLuhan’s writing predicts a future technology that would integrate the television, computer, and database.⁵ He is famous for his insight that technologies hold great meaning independent of the content they carry—made famous by the expression the “medium is the message.” He foresaw a future where instantaneous electronic communication would connect people across the world, blending together space and time to make possible a “global village.”

McLuhan did not advocate for such a village to only support the voices and agendas of a limited few. Yet insofar as a global village exists today, it seems to primarily support the utopic zeal of technologists to make the world transparent and governable.

The term “village” is troubling as it collapses the experiences of billions into the agendas of the few who have power and voice. There is great value in bringing the world closer around many conversations and actions such as climate change, the fight for social justice, and a host of other issues. But the ways in which this term is applied to technology assumes homogeneity instead of respecting plurality. Our world is not a global village today with respect to the Internet, nor should it be. An incorrect prediction that the world has become a global village has now come to be treated as normative, what we should be striving toward.

My goal is to reimagine the concept of “global village” so that technologies can support a range of practices, visions, priorities, and belief systems of indigenous and non-Western cultures across the world. What if we respectfully “splintered” a top-down model of technology use to

consider voices from grassroots communities? What if we thought of technology design accordingly, as continuously and dynamically crafted through collaborative processes?

We could then start to visualize a world where technologies serve diverse communities rather than vice versa. Where a set of local internets could emerge and shape global conversations. Local protocols, fluid ontologies, progressive algorithms, indigenous systems of intellectual property—these conceptual terms are discussed in this book's chapters in relation to my collaborations with diverse communities. They are alternative building blocks intended to inspire technologists, scholars, activists, and the public to rethink how technologies are made and shared.

An interesting parallel to my argument can be seen around a number of nontechnological issues, despite their different histories and perspectives. One is the controversial issue of affirmative action, which proposes the inclusion of marginalized communities in hiring or admissions decisions. Like affirmative action or any other program that strives to support diversity, the inclusion of grassroots users in a conversation around technology is important. It allows different voices and perspectives to enter a debate that is otherwise limited by the homogeneity of its participants. It also empowers those outside the existing group of decision makers to gain power for themselves and their communities through their participation. Yet this alone is insufficient. The larger system may be transformed for the better only if it respects the sovereignty of its new voices. Similarly, to rethink how technologies can better serve diverse cultures and ultimately contribute to the world, we can imagine digital efforts where the voices and knowledges, or *ontologies*, of diverse communities are respected as sovereign while empowered to speak to one another. This book discusses the power of such a path, building on my collaborations with communities across the world.

Diversity and Ontology

Social scientists have argued that an alternative to the universalizing ways in which we understand new technologies can emerge if we respect cultural diversity. My treatment of diversity refers not only to demographic differences around race, gender, geography, sexuality, or disability, but also to distinctions between the beliefs and knowledges

different cultures hold. I consider how diversity exists not only between but also *within* communities.

Working with diverse cultures requires respecting the different means by which communities articulate their experiences. These are revealed through actions, or practices, as well as in terms of shared values, norms, and ontologies. Yet such diversity is rarely central to the process by which technologies are designed. Based on fieldwork conducted in Southern India, chapter 2 discusses how digital storytelling can empower community voices and perspectives. Building on this, chapters 3 and 4 discuss the potential of designing networks and databases that respect community ontologies and value systems.

Many agree today that the vanishing of linguistic, cultural, and biological diversity is of major concern. Climate change has disproportionately threatened those on the margins, contributing to this loss of diversity. David Turnbull, a philosopher of science and technology, points out that “cultural diversity is, like biodiversity, facing an extinction crisis. Languages are disappearing rapidly, and in the last 100 years, agricultural diversity has also declined. Approximately 75 percent of the world’s calorie consumption is now derived from only three plants (rice, maize, and wheat) Thus, we are facing the barren desert of monoculture and the possible extinction of much of life on earth, and, we have seen no limit to our drive for assemblage.”⁶

Turnbull argues that the diversity crisis is worsened by the assumptions behind the technologies we use to “preserve” diversity, namely, archives and databases. Scientists and cultural heritage experts have argued about the importance of various preservation efforts. They have pushed for databases, archives, and repositories that take specimens and classify endangered flora and fauna. Yet critics ask whether diversity is being compromised rather than promoted through such efforts. The problem, Turnbull argues, is the imposition of a model that presumes it knows what collecting and preserving is, based on the legacies of laboratory culture rather than the conditions and voices of the local environment.

Like biodiversity, one could see how this issue also applies to how technologies are deployed to preserve cultural heritage. Bureaucratic and institutional approaches toward documenting, collecting, and preserving may ignore the perspectives of the people they are supposed to represent. Technologies that follow these top-down principles sup-

port the values of those in power while ignoring the voices of diverse communities.

When Turnbull references the term assemblage above, he is concerned that existing approaches toward managing and databasing knowledge significantly contrast with local customs and traditions, particularly those practiced by indigenous peoples engaging with their own environment. We must not allow ourselves to bow to the protocols of existing technology. Instead, we can reflect on how to make possible what information and media scholar Phil Agre⁷ refers to as “*deep diversity*,” where knowledge is treated as a process rather than a commodity. We can think of the Internet similarly.

Techno-Inevitability

Despite their relative youth, it has become easy to assume that new technologies are here to stay and will seemingly forever be central to every aspect of life. The myth of *techno-inevitability* produced by many pundits of the digital age is dangerous because it naturalizes a belief that technologies should dictate our material and sentient experiences of being. Most insidiously, this myth transforms a set of political and philosophical agendas into words such as “neutral,” “scientific,” and “humane.” It blocks us from questioning the agendas that shape technology production and deployment.

The global village myth sees technology as simply “technical,” presuming that what is coded into a tool will inevitably come to pass. From this perspective, the mere extension of digital technology across the world transforms the world into a village. In contrast, this book attempts to de-Westernize a top-down understanding of contemporary technology by sharing stories from across the world of how digital tools have been reinvented to support grassroots aspirations, values, and cultures.

Our thinking about new technology can embrace the diversity and complexity of peoples, environments, and cultures where such tools have already migrated, considering for example the realities of rural peoples with mobile phones from a more immersive perspective. In so doing, we can think past simplistic and incomplete notions such as having “access” or being “connected,” and consider how these tools may be shaped in the context of everyday life across the world.

This book describes rich examples whereby local communities have transformed new technologies to support their own agendas. Such stories remind us of the importance of creativity, forcing us to remember that innovation is not limited to technology bubbles of the Western world. From examples of how mobile phone lights are used to hunt crocodiles in New Guinea, to how credits are exchanged to make banking possible without the presence of financial institutions, the world is full of reminders that the uses of a technology are never fully determined by its designer. Yet we should not merely marvel at the creative ways in which many communities have appropriated these tools, but see this as motivation to collaborate with diverse user groups to together design technology systems and projects that respect their worldviews and aspirations.

Stories of Collaboration

This book explores Internet and social media technologies within indigenous and developing world communities and activist groups across the world. Over the next several chapters, I share stories of collaboration from rural India, Native American reservations, and revolutionary Egypt. They reveal the power of understanding new technologies in relation to places, peoples, tools, and systems.

I write this book subjectively through the use of personal anecdotes. In that sense, the observations and arguments I share are *reflexive*—they are partly about myself. Like many of the community groups with which I collaborate in this book, I too am part of multiple cultural or community identities, whether as a man of color, a South Asian, or engineer turned media studies scholar. All these are invoked at different moments throughout this book. I wish to avoid exoticizing culturally diverse or marginalized communities as “special” while labeling myself a “truth teller.” My goal instead is to be mindful of my relative power and privilege, attempt to release it, and tell ethnographic stories of collaboration. I hope through this to open up a space for rethinking how technology initiatives across the world might be reimaged from the perspective of peoples otherwise seen as objectified users.

The examples this book shares reveal that technologies can be designed and developed according to the ethic of *praxis*, a collaborative

approach that stresses the potential of equality and collective learning. Praxis directly contrasts with the methods adopted by projects that dictate how a community “should participate.” I believe what is required is a change in understanding, which neither marvels at “what is” nor overspecifies “what should be.”

My approach has been influenced by a number of scholars and activists. For example, Luke Lassiter, an anthropologist and humanities scholar, has authored a number of books and articles on the topic of *collaborative ethnography*. This approach encourages the researcher to embrace the collective process of collaboration rather than see a community as an object of study. Collaborative ethnography is a response to critiques of ethnography’s positivist and naturalistic histories.⁸ In the past these approaches objectified communities and cultures through quantification or exotic descriptions of them in their “natural” state. Ethnography’s more recent shift toward reflexive methods forced researchers to recognize their dual roles as participants and observers in community life. Yet it did little to disrupt long-standing inequalities between academics and the communities they “studied.”

Lassiter and Elizabeth Campbell, an education and development scholar, have more recently outlined a set of clear strategies by which collaboration can be consciously enacted at every stage. They defend collaborative contexts as legitimate settings for contemporary ethnographic work and argue that there are critical moral and ethical issues at play in collaborative research. They point out that field notes, interviews, and participant observation must be conducted in a manner that is consistent with the observational and descriptive practice of ethnography and the ethical principle of equality. I engage these methods actively throughout this book, while also recognizing the reflexivity in all the projects I describe—that they are partially about my own experiences and subjectivities. The projects I share attempt to push past my own biases to defer to the voices that I have heard and learned from. That said, much of my voice in this book can be seen in relation to the method of *autoethnography*,⁹ relating my personal experiences to the processes of listening, learning, and cocreating the projects discussed.

This book underscores the point that the support of community-based approaches toward technology are not in themselves a panacea.

Linda Tuhiwai-Smith, an indigenous Maori woman and education scholar, critiques the community-based participatory research process, explaining that many maintain a distance from the community they study. She points out that the bodies, places, resources, and knowledges of indigenous peoples were misappropriated through processes of imperial, colonial, and neoliberal commodification, even those that claimed to include communities and cultures.

Tuhiwai-Smith points out that social justice should not be seen as anti-academic or in tension with the research process but instead as the basis of collaboration. Researchers must let go of their attachments and embrace beliefs, values, and practices that differ from their own. Perhaps most importantly, research requires caring about the agendas of one's community partners rather than paying homage to a research tradition that has harmed indigenous and non-Western peoples. This work is an important reminder that collaborative work with technology is also political.

The projects featured in this book are also influenced by action research, an approach pioneered by German psychologist Kurt Lewin and colleagues.¹⁰ Action research rejects controlled studies to instead focus on indigenously articulated aspirations and practices. As Rory O'Brien, information studies scholar from the University of Toronto, explains,¹¹ this method is dedicated to linking a researcher and community within "a dual commitment . . . to study a system and concurrently to collaborate with members of the system in changing it in what is together regarded as a desirable direction. Accomplishing this twin goal requires the active collaboration of researcher and client. It stresses the importance of co-learning as a primary aspect of the research process"¹² and an ethical approach toward collaboration.¹³

Related to action research is the approach toward *praxis* that characterizes the collaborations I share within this book. Praxis is an approach that stresses collaborative learning and creation to overcome inequality. Brazilian theorist Paulo Freire, perhaps the most famous theorist of praxis, pointed out that well-intentioned "teaching" efforts might place students in subordinate positions.¹⁴ Freire argues for the importance of initiatives inspired by the ethic of praxis.¹⁵ Community members from this perspective are seen as active creators rather than passive recipients and subjects of research. This process conceives of the student as equal

to the teacher, with both collectively engaged in a process of creating, actively listening, and committing to equality. He explains that knowledge is created through a *process* rather than by following existing protocols.

(Traditionally) it is the people themselves who are filed away through the lack of creativity, transformation, and knowledge in this (at best) misguided system. For apart from inquiry, apart from the praxis, individuals cannot be truly human. Knowledge emerges only through invention and re-invention, through the restless, impatient, continuing.¹⁶

We can think of our work with technology similarly. If we apply “knowledge management” protocols toward our collaborations with diverse communities, we ignore rather than learn from one another. This book reveals my experience of attempting to work with communities while recognizing that my initial connections tended to be with elites within such groups. In fieldwork, researchers often attract members of a community similar to themselves. I often would be first introduced to male, formally educated, and wealthy members of a community.

It is important to consider multiple voices and internal inequalities *within* communities, many of which too often suppress the voices of minorities and women. We cannot simply accept the involvement of community members as a type of participation to strive toward. Communities are hardly homogeneous, and simply accepting “community” as a label does little to respect the voices of those silenced within the group. We must resist the belief that the silent presence of women or minorities in community-based projects is sufficient.¹⁷ Without such mindfulness, community-based research introduces what development scholars Irene Gujit and Meera Kaul-Shah call a “new type of tyranny.”¹⁸ These projects, despite their use of the “community” label, perpetuate rather than combat inequality.¹⁹

Robert Chambers, a developmental scholar, explains that these changes in community engagement may seem subtle, but they can dramatically affect how collaboration is envisioned and enacted. As we explore a role for new technologies to serve and support community agendas worldwide, we should consider the power of “[seeing] things the other way round, to soften and flatten hierarchy . . . to change behavior, attitudes and beliefs, and to identify and implement a new agenda.”²⁰

A Crossroads

This book has five major chapters that work to unpack the issues I've raised thus far, presenting detailed ethnographies from the second chapter onward.

The first chapter starts with a story from my fieldwork in the heat of Egypt's Arab Spring to then transition to describe some of the major arguments around the study of global technology and media, and histories associated with digital technology and the Internet. Its contribution is to recognize how narratives influence and shape our understanding of technology, and that the history of digital media can be tied to different myths of the world and how it functions.

The second chapter builds upon the first by considering what types of new stories can be told when technologies are placed in the hands of marginalized users for active use, particularly relative to discussions around technology and economic development across the world. It discusses the problems with the concept of the digital divide and reveals through ethnographies I share from South India of what might be possible when rural and nonliterate "users" are transformed into creators using digital video cameras.

The third chapter considers how networks and databases can be reimaged through collaborations with Native American communities in remote regions of Southern California. It reveals the power of building grassroots networks within and across these communities through collaborative design processes, where community members are placed in a position of power not just to create and share content with one another but to design the very infrastructures and database that shape how such information is categorized and communicated. A key concept discussed in this chapter is that of *fluid* ontology, an approach toward classifying information developed by the community. This chapter reflects on the great potential of rethinking networks and databases "from the margins."

The fourth chapter builds on the concept of ontology introduced in the previous chapter, in the context of a multiyear collaboration with the Zuni Native American museum in remote New Mexico. The chapter tells stories that reveal how I learned to adjust to and learn from a community where knowledge, authority, and the delineation of insider

versus outsider are carefully guarded and given great respect. It argues that knowledge can never be fully “represented” or “captured” through any technology, no matter how it is designed. These experiences helped convince me that in their best moments technologies support the ways we communicate and share knowledge.

The fifth and final chapter of the book reflects on the projects shared to argue for the importance of “world listening” rather than “world making.” It expands upon a range of other indigenous and non-Western metaphors by which technologies can be reimagined ranging from Zapatista land in the jungles of Chiapas, Mexico, to the Navajo Native American reservation. It comes full circle to return to the story I tell in the first chapter of my recent research in Egypt, which rebuts the “Facebook Revolution” hype that dominates popular understandings of the Arab Spring. In so doing, it emphasizes what is lost when we choose to “technologize” stories of political, social, or cultural activism. This chapter closes the book by asking us to remember “Whose Global Village” we choose to support, underscoring the power of collaborating with diverse users and communities across the world to rethink the stories, representations, systems, and networks that new technology can support.



Figure 1.1. "Social Media Revolution" T-shirt purchased in Egypt's Tahrir Square.