

Seeing the World in 5 Dimensions – More or Less?

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Abstract. The use of computers and mobile technologies challenges conventional experiences of place and ideas about the stability of culture and gives us more choices. We can experience locations in 3-dimensions (face-to-face), 2-dimensions (on-the-screen), or 5-dimensions (mediated through our smartphones). This paper considers some elements of place, space, and geography and suggests the need to consider the values of being lost, knowingly experiencing danger, travelling blind, coming together, putting our bodies on the line, and dealing with change. Ultimately, we should consider what we lose as well as what we gain by moving more of our lives online.

Keywords: Human-computer interaction, sociology of mobility, geography, culture.

1 Introduction

Places shape us. For a start, our birthplace is imprinted in our bones. Forensic scientists have developed analyses to identify the isotopes of common elements found in the food and water that we consumed in childhood. We may move to another continent but we can be traced to our original home [1].

More importantly, geography has long been considered one of the key determinants of culture. Geert Hofstede [2] lists geographical latitude as one of the three predictors¹ of power distance – higher latitudes are associated with lower power distance (more egalitarian) cultures. Hofstede speculates that the relationship between latitude and power distance is historically due to the abundance of nature. At more equatorial latitudes, people were able to organize themselves into farming communities, had a surplus of food to eat, built cities, and confronted enemies who wanted to move into their territory. They needed strong leaders to defend them so they tolerated and soon admired kings and emperors. At higher latitudes, nature was less generous. In temperate climates, people put their energies into industry rather than agriculture, which shifted the social focus to innovation and individualism; farther north (or south), people continued to live in small co-operative groups practicing hunting, herding, or transhumance. Both industrial and hunter-gatherer

¹ The second and third factors are larger population (more power distance) and wealth (less power distance).

type societies had more need for cooperative relationships and less need for authoritarian leadership.

But today nature and natural abundance are no longer the direct influences on lifestyle that they once were. People in the Middle East “farm” oil; people in Iceland grow tasty tomatoes and carrots in geothermally-heated greenhouses. Tunisians and Egyptians living in an equatorial latitude have forced their dictators to flee; Libyans continue to mobilize against their authoritarian leader as I write this article.

Hofstede further notes that collectivism (which has a positive association with higher power distance) breaks down with economic development and greater personal wealth. Agrarian societies that relied on extended families working together in tight webs of kinship are being replaced by conurbations that attract (and reward) educated, self-motivated individualists willing to take risks. Failure once brought shame to all; those who failed would leave their communities to build new lives in places where they were unknown. Relocation for such a reason is not longer needed – nor possible. As societies become more individualistic, failure has become an often-essential “learning experience.” In addition, anyone can find you on Google, and you can find out almost everything about anyone if you are persistent.

Our sense of place is changing; in many ways, we have entered an era of placelessness. Digital natives have inhabited this utopia² since birth and the rest of us digital immigrants are slowly looking around and realizing that we are no longer rooted in a geography. If we are over 30, we grew up in a 3 dimensional world; we went outside to play and we shopped “downtown” or at the local mall. We still enjoy going to our local coffee house (or pub) to meet our friends and observe the passing scene. We are not averse to the 2-dimensional world. We work “with” computers. We waste time playing online games, seek out amusing You-Tube videos, vicariously experience travel, or watch breaking news. We send interesting links to our friends by email or text. We may not have the time for a shared coffee but we can share a laugh. But increasingly the world is being experienced in 5 dimensions – our 3-D reality mixes with 2-D representations on our smartphones. We chat face to face with friends while reviewing someone’s Facebook page. Our phones tell us where we are and show us messages, photos, and advertisements associated with a variety of geotags.

What happens to the rigidity of place as the boundaries between space and cyberspace dissolve? For a start, the immediacy of the 3-D world tends to be diminished. Transcending physical boundaries and adding practically unlimited connectivity is often surprisingly underwhelming. Further, we may come to believe the place “is” its visual, video, and text representations.

What are the effects on culture as all the world comes together on a small screen?

As we develop better tools to augment and mediate place, we need to consider the advantages we may be losing in a 5-dimensional world. Place is a valuable resource for human experience – and a generative force for human culture and creativity. I argue that six elements of space, place, and geography need to be sustained in both our offline and online worlds:

² Thomas More (1516) named his imaginary island Utopia from the Greek *ou* not + *tóp(os)* a place + *-ia*.

- Being lost
- Knowingly experiencing danger
- Travelling blind
- Coming together
- Putting our bodies on the line
- Dealing with change

2 Being Lost

We can no longer get lost in the 5-dimensional world – except when we are. I keep a poem next to my desk to remind me that being lost is a very advantageous state:

Lost [3]

Stand still. The trees ahead and bushes beside you
 Are not lost. Wherever you are is called Here,
 And you must treat it as a powerful stranger,
 Must ask permission to know it and be known.
 The forest breathes. Listen. It answers,
 I have made this place around you.
 If you leave it, you may come back again, saying Here.
 No two trees are the same to Raven.
 No two branches are the same to Wren.
 If what a tree or a bush does is lost on you,
 You are surely lost. Stand still. The forest knows
 Where you are. You must let it find you.

Being lost can be frightening, but finding yourself elsewhere can be incredibly liberating. Disorientation forces us to rely more on our senses and be open to the world. Time slows down and we notice details that would normally pass below conscious awareness. Travel famously moves us to reexamine our assumptions about self and other. As we make sense of our surroundings, we discover new aspects of our own personalities, social assumptions, and cultures. We may find ourselves experiencing that sense of “flow” that Mihaly Csikszentmihalyi [4] described as the state of optimal experience.

Flow is found both offline and online. An admirable sense of adventure and discovery fuels many online games and most web surfing. Massively multiplayer games like *War of Warcraft* provide an immersive 2-D experience in a persistent virtual space that removes players from 3-D reality. Constance Steinkuehler [5] claims “big G Games” are social simulations with their own emergent cultures that should be studied to understand broader psychological and social phenomena like cognition, problem solving, production, consumption, learning, apprenticeship, gender, and collaboration.

But how do these cultures stack up against the real world? Before he died, Randy Pausch [6] talked about the challenge of motivating students to build immersive games and environments without sex and violence. It is difficult to imagine that which you have not experienced. Our technologies capture some types of experience well but filter out others. What elements of human relationships, personality, place,

and culture don't make it into 5-D worlds? People no longer complain about being "lost in cyberspace." But is it still possible for us to find the intangible – and for the intangible to find us?

3 Knowingly Experiencing Danger

Being lost also exposes you to elements of risk – boredom at minimum but, sometimes, real danger. The attraction and horror of Aron Ralston's 127 hour ordeal in the desert comes from our knowledge that he would have died had he not cut off his own arm. Because missing children are advertised on milk cartons, children stay home after school, play online games, eat too much, and exercise too little. Eight-year olds are given cell phones to stay safe; twenty-year old college students still phone their parents two or three times a day.

The real world can be dangerous, but what kind of danger comes from exposure to the 2-D and 5-D worlds? It's a mixed bag. Media give us cautionary tales of sexual predators lurking in teen chat rooms; retirees are cautioned to be skeptical of Nigerian bank account frauds and criminals working through Craig's List. But much of the time, we rely on our online worlds to protect us from real-world harm.

How valid is that information – do we recognize when we are deceived? Can we rely on crowdsourcing for verification? How can we measure what is truer and falsier? In 1999, Johnston and Johal defined the Internet as a "virtual cultural region" whose individualistic inhabitants had low uncertainty avoidance³, low power distance, and strong masculinity [7]. Their description still sounds apt. Such residents are willing to take risks, see all sorts of sources as authoritative, and embrace definitive answers. Shades of grey are not welcome.

Many people in the United States continue to believe Saddam Hussein was linked to al-Qaeda because they can point to websites that say he was involved in the attack on New York. Others assert President Barack Hussein Obama is a Muslim born outside the United States. The history tabs for Wikipedia pages on topics like war, abortion, and politics reveal a never-ending battle between sectarian points of view. When you logon determines the truth you will find that day.

Other material on the web is simply odd. I grew up next to an abandoned cemetery that was haunted by kids making out and occasionally getting high. Today, *Weird NY* [8] says, "No one ever wants to discuss Troy's Pinewoods Cemetery (a.k.a. Forest Park), because this one is so haunted that some say you can never leave once you enter." Other sites describe it as one of the ten most haunted places in the United States. I've been asked by people from Virginia if I have seen the spirits.

Decoding urls, looking for authorship, checking history (when available), trying to determine the currency of information, looking for internal inconsistency, and recognizing skewed statistics are all fairly advanced information skills that are hard to master. Yet the web has become our principal tool for avoiding danger. Movies, restaurants, and professors are ranked on the web. If you look deeper, those ratings often display bias. But who has the time to analyze them? Whole parts of the

³ Hofstede [2] described high uncertainty avoidance as "what is different is dangerous" and low uncertainty avoidance as "what is different is curious."

world – the places, faces, and ideas attached to sections of the web – can be placed off-limits without real understanding of the risks, while other parts may be unmarked but dangerous.

Eight years ago, I interviewed groups of Malaysian students to discover how they learned to use the Internet. I was surprised when they told me that they became comfortable using computers by spending time in cybercafés chatting online with strangers. Face-to-face, these students tended to be conservative and private, but they were taking risks in the cyberworld that United States students are strongly warned against. Why?

One of the students told me that she didn’t see the Internet as a site for serious research before coming to the United States:

I did not use much for. I don’t know, how they... I don’t believe (both students laugh) Ah, because the Internet is like, you know is, like on the air, like. How do you say it? So, I just cannot believe everything I see through the net. But, from when I came here, then I use much, I use the Internet very much. And I guess my belief was (all laugh) it was something like that.

We become socialized into the online world, just as we are taught the limits of physical space. BJ Fogg [9] developed a typology of web credibility:

Presumed	– General assumptions
Reputed	– Endorsements, reports, referrals
Surface	– Inspection, first-hand experience
Earned	– Experience over time

My Malaysian informants became proficient users as they went through a conversion process – first, developing trust in the web itself (presumed credibility); then, gathering information from others (reputed credibility); next, inspecting certain websites themselves for surface credibility; and, finally, coming back to them over time (earned credibility) [10]. However, once you learn to trust the web, you may no longer be able to recognize its risks.

4 Travelling Blind

Geographies are composed of inhabited places, roads, and countryside; networks are composed of nodes, lines, and interstitial voids. However, the two systems do not perfectly overlap. The old adage states that “getting there is half the fun.” At least half the half comes from discovering what exists in the intermediate spaces.

Physical travel tends to be linear. When we drive, roads constrain our choices. When we take a train, the railway line appears to take us directly from station to destination. When we fly, the duration of a feature film brings us from coast to coast. However, there is often more to these experiences. On the highway, we glimpse one or a hundred and one vignettes – a little girl on a swing, an immature red-tailed hawk on the limb of a dead tree, the play of light on a passing pond. On the train, we see

into the backyards of homes, farms, and factories. On the plane, those in the window seats view the world from 30,000 feet. (Before Google Earth, flying was the nearest you could come to god-like omniscience).

By contrast, search engines and hypertext jump us from node to node. We lose the context of these points because we never actually pass through their surroundings to get to them. Every once in a while, on the original Star Trek, the Enterprise team would beam down and discover themselves in a hostile world. They could either beam back (but something always went wrong) or tough it out. Those tend to be our choices too.

Context is important in the 3-D world but even more important in the 2- and 5-D worlds. Is our information embedded in a larger document, database, or site? Where did it come from? What element of Google (and our) search strategy brought Glastonbury Abbey, Massachusetts, to the surface 6 places ahead of Glastonbury Abbey, England? Is the software actually working correctly? When I look for St. Paul’s Church in Greenwich, Washington County, New York, it takes me a moment to realize that the search has brought me to St. Paul’s Church, Greenwich Village, New York City. There’s a bug in Google Earth but I know it only because I was already planning to go to a concert in Greenwich at 3 pm.

Twenty years ago, Bill McKibben [11] critiqued the world we can know from television in *The Age of Missing Information*. He compared two experiences of a day – 1000 hours of videotape broadcast on cable on May 3, 1990, with a “conventional” summer day in the Adirondack Mountains of northern New York State.

I’m not interested in deciding which of these ways of spending time is ‘better.’ Both are caricatures, and neither strikes me as a model for a full and happy life. But caricatures have their uses – they draw attention to what is important about the familiar. Our society is moving steadily from natural sources of information toward electronic ones, from the mountain and the field toward the television; this great transition is nearly complete. And so we need to understand the two extremes. One is the target of our drift. The other an anchor that might tug us gently back, a source of information that once spoke clearly to us and now hardly even whispers. [11: 10]

Imagine yourself multitasking your way through 1000 hours of Twitter, You-Tube, Facebook, phone apps, and websites. What would you find and what would you miss?

5 Coming Together

John Urry [12] talks about the sociology of mobility in terms of three types of co-presence:

- “Face-to-face”
- “Face-to-place”
- “Facing the moment”

We’ll start with the first two.

When we actually get to our destination, meeting people face to face provides “rich, thick co-presence, where trust is an ongoing accomplishment and which sometimes permits disembedded relations to straddle the globe” [12: 261]. As HCI

practitioners know from innumerable studies of telework and virtual teams, good teamwork often requires an initial face to face meeting. Without it, the group has difficulty coming together and agreeing on a plan of action [13]. Other times, the problem isn't that we have negative ideas about people from first meeting them online; instead we may have "hyperpersonal" [14] impressions that are unreasonably positive. With time, we exchange enough information to develop more realistic appraisals of the other person; unfortunately, we may have elected them to office (or given them their own reality show) in the meantime.

Experiencing a location "face-to-place" is a different issue. "To be there for oneself is critical.... There is a further sense of co-presence, physically walking or seeing or touching or hearing or smelling a place [12: 261]. Urry comments that physical experience is the essence of adventure. McKibben believes we need direct contact with nature for complete information. Marion Bowman [15] explains how certain events, like pilgrimage, require physical effort to achieve meaning.

Glastonbury in Southwest England was a pilgrimage site in medieval times and has become one again for a variety of religions and spiritualities. One can follow the Goddess, walk the ley lines emanating from the Tor, see the thorn trees that sprouted from the staff of St. Joseph of Arimathea (and mourn at the stump of the tree on Wearyall Hill), explore the ruined Abbey, drink at the Holy Well, and wander throughout the Glastonbury Zodiac. Once, pilgrims walked to Glastonbury; today, they drive or logon. At the website of the Roman Catholic Shrine of Our Lady of Glastonbury [16], you can find information about the summer pilgrimage or make an immediate petition. However, as Bowman found, the website is less a virtual pilgrimage than a postbox. When she spoke to the shrine authorities, she was told that a petition has no power until printed and placed in a book at the foot of the statue. You must come yourself or allow another to transfer your petition to Our Lady. There is no substitute for the "real thing."

Avi Friedman also examines our sense of place:

What do I mean by 'place'? Places give the people who inhabit, visit, and use them an identity. Those with an authentic atmosphere inspire people and draw them into some kind of relationship. They are characterized by signs and symbols unique to each. [17: 10]

Throughout his book, *A Place in Mind*, Friedman discusses the power of the built environment to welcome us or distance us from ourselves, others, and nature. Each chapter discusses an issue like historic preservation, roads, playgrounds, or food in the context of a specific locale. An outdoor teahouse in Istanbul welcomes the tired tourist and reveals itself through its layered sights, sounds, and smells. The Osteria Acquacheta in Montepulciano meets Ray Oldenberg's criteria for a "third place":

...a typical third place may be plain and unimpressive looking. You will rarely find them advertised or posting a flashy sign, because the locals know where they are. They are often independently operated, mom-and-pop businesses. Their interiors may be worn or even shabby, yet they are kept clean by owners who are devoted to the comfort of their patrons. The mood tends to be playful. Walk in and you feel at home. Memorable third places feed their patrons with a plate full of simplicity with an open heart and good will. [17: 34]

In the 5-D world, a third place might suffer one of two fates – overwhelming popularity and implosion or withering-away as the next third place went viral. Could Friedman write a series of vignettes on the power of place in websites, blogs, databases, Facebook pages, or You-Tube videos? Certainly not yet.

6 Putting Our Bodies on the Line

John Urry says that time and place may coincide in “facing the moment” – the experience of a specific event at a specific time in a specific place. The Egyptian protestors in Tahrir Square made history in a way that their avatars could not; men and boys slept on tank treads to prevent the military from moving against the crowd. They could have died, as did Chinese protestors in a different square in 1989, but the people won. Although the protestors relied on Facebook⁴ to assemble, they will be marked forever by their corporeal experiences.

When we experience the intense immediacy of being face-to-face, face to place, and facing the moment, we build “social capital” – meaningful relationships with people and places that reflect dense webs of interaction. We can apply those memories to mediated 5-D experiences but, as Urry suggests, that leaves less time to sustain those webs of mutual meaning-making. Even as we collaborate with others through our smartphones, iPads, and laptops, the immediacy of our experiences is attenuated – reduced to the small screen. Events like conferences, in tourism centers like Orlando, are important because they provide the intermittent renewal of small social worlds inhabited by globally-distributed members. Some memory of actual physical travel through space and time – with ungrudging attention to “being there” – seems essential to maximizing all forms of virtual proximity.

Perhaps as we grow more skillful, we will be able to move in and out of our 3, 2, and 5-D worlds with more grace. Right now, these worlds are often in conflict. The student holding her smartphone to monitor the latest texts speaks disjointedly to me about the paper she is trying to write. The information, that the movie I want to attend has been cancelled due to a snow storm, is false. But, the mobilization of the Libyan diaspora in Canada through Facebook to send medical supplies to Tripoli is enthralling. Residents of the city send video footage and messages of resistance as bullets fly over their heads. One may not need to be personally present for effective co-presence and coordination. But it seems that someone must be “there” for you to find your own voice “here.”

7 Dealing with Change

Finally we come to the experience of time, the hidden 4th dimension⁵ in our 5-dimensional world. I married three years ago and my stepson emailed me when Google StreetView went live for our suburb, “I know when they photographed your

⁴ Howard Rheingold [18], who has been following the emergent properties of “smart mobs” and “flash mobs” for years, must be pleased.

⁵ With apologies to Einstein, my concern is more prosaic than spacetime or 4-D Euclidean space.

house!” Sure enough, it must have been early on the morning of our wedding; the rented tent could plainly be seen. You can see it still – and we’re still married. But, given the average duration of marriages in the United States is a bit less than 8 years, that image could easily become an embarrassing token of a divorce.

Change can be dramatic or subtle. Dramatic changes tend to be easier to recognize. The last time I visited Rochester, New York, my husband showed me his boyhood home. A year later, we could not find it on Google Earth, just a vacant lot. Subtle changes are harder to recognize. An out-of-date schedule. Incorrect prices. Businesses that have moved or failed. Unfortunately, an image does not age.

The 5-D world relies on each one of us to monitor change and made updates. But you may not be authorized to update my page. Or you may geotag the wrong building. Four years ago, Wikipedia had 54,000 contributors; today, it has 35,000 [19]. Jimmy Wales claims that the decline is natural, “The project is more complete.” But others say an inner circle of editors discourages new contributions and puts its own spin on entries. As the novelty of crowd-sourcing passes, there is legitimate concern that 3-D change will not be mapped onto the 2-D and 5-D worlds.

8 Conclusion

I am not a techno-skeptic but I am curious about what is happening to notions of culture and geography as we spend more time experiencing the world through technology. Culture is holistic; growing up in particular cultures, we are taught what is valid and what is not. By exploring our boundaries, we decide how much of our tradition to fully embrace. Even when we reject culture, we are marked by it. Our behavior is grounded on attitudes that, in turn, rest on sets of cultural values. Geographic metaphors pervade our discussions of culture. Where we have lived influences our notions of ourselves, our families, our in-groups, and others. We define ourselves as the product of specific places and times.

At the same time, we are mobile and increasingly connected. Although the number of people who change their residences has dropped due to the recession, around 14% of the United States population still moves each year. [20] Our mobility may disconnect us from our past, but Facebook helps us find old friends and keep up to date with trusted organizations. Technology helps us find continuity in our personal diasporas.

It makes no sense to reject the merger of online and offline information. Even the Amish have come to terms with cell phones – they may not keep them in their homes but they will use them to speak to family. Rather, we need to think about our repertoire. When is the 3-dimensional world more truthful than the 2-dimensional world? When do smartphones and apps enhance our 3-dimensional experience of places and people? Have we begun to see the emergence of long-lasting online communities that engender persistent cultural values?

Digital natives inhabit a world vastly different from that of their elders. But is it one world – with one culture – or many worlds with a wide range of opportunities for personal expression and community inclusion? Thinking about the 3, 2, 5 – and 4th – dimensions may help us find a better future.

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