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To cite this article: Christa Teston (2016) Rhetoric, Precarity, and mHealth Technologies, Rhetoric Society Quarterly, 46:3, 251-268, DOI: [10.1080/02773945.2016.1171694](https://doi.org/10.1080/02773945.2016.1171694)

To link to this article: <http://dx.doi.org/10.1080/02773945.2016.1171694>



Published online: 02 Jun 2016.



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Rhetoric, Precarity, and mHealth Technologies

Christa Teston

Wearable technologies in general and mHealth data in particular are championed frequently for ways they afford individual agency and empowerment and promote what the Robert Wood Johnson Foundation (RWJF) calls a “culture of health.” This article complicates such epideictic rhetorics based on results from a situational analysis of the RWJF’s Data for Health listening events, which incorporated panelists from the RWJF, JawBone, Inc., the Quantified Self, and other mHealth technology organizations as well as audience participants who work in community health. Given panelists’ and audiences’ diverging claims about how mHealth data either succeed or fail in creating a culture of health, I mobilize precarity as an analytic construct for critiquing the coexistence of technoscientific progress alongside the persistence of health disparities among vulnerable populations.

Keywords: materiality, medicine, mobile health, precarious rhetorics, technology

Data circulate much more freely than human subjects.

—Rosa Braidotti, “Writing as a Nomadic Subject”

Many regard the widespread use of cellular phones and other mobile devices for self-tracking health as revolutionary (Blumenthal; Weiderhold). Even the United States’s largest philanthropy focused solely on health—The Robert Wood Johnson Foundation (RWJF)—celebrates the “explosion of apps and devices that track fitness, mood and sleep” for ways that they “create new forms of data relevant to health” (“Robert Wood Johnson”). Aware of risks associated with using data from wearable and mobile health technologies (hereafter, mHealth technologies), the RWJF argues for “secure, protected access to this wealth of information” so that “individuals, health care providers and communities make smarter, faster decisions that improve the health of the public and promote healthy lifestyles” (“Robert Wood

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Color versions of one or more of the figures in the article can be found online at www.tandfonline.com/rrsq.

Johnson”). Here, the RWJF prioritizes security, privacy, accuracy, and speed within medical decision making. Moreover, they regard mHealth technologies as having the potential to affect care in assumedly positive and productive ways. But while wearable technologies afford the quantification of self for some (see, e.g., Lupton; Smarr; Swan), other selves simply do not count. These technologies, therefore, invite careful and critical scrutiny since, as Sheila Jasanoff argues, technoscientific advances are “interwoven with issues of meaning, values, and power” (29).

In a recent publication, *The New England Journal of Medicine* reminds readers that, “In terms of birth outcomes, heart disease, motor vehicle accidents and violence, sexually transmitted disease, and chronic lung disease, Americans fared worse than residents of all other high-income countries” (Bayer and Galea n.p.). The authors plead with readers to develop “the vision and willingness to address certain persistent social realities . . . that matter most to the production of population health” (Bayer and Galea n.p.).¹ Given these data, one must wonder: For what populations are wearables, in general, and mHealth technologies, in particular, revolutionary? How does one reconcile the fact that the United States has never before possessed more medical- and health-related data, and yet the health of some of its most vulnerable populations is at greater risk than ever before?

The US Department of Health and Human Services characterizes material realities inhabited by those who reside on the fringes of mainstream society as *health disparities*, which they define as adverse effects encountered by

[g]roups of people who have systematically experienced greater obstacles to health based on their racial or ethnic group; religion; socioeconomic status; gender; age; mental health; cognitive, sensory, or physical disability; sexual orientation or gender identity; geographic location; or other characteristics historically linked to discrimination or exclusion. (U.S. Department of Health)

The simultaneous increase in both the technoscientific curation of mHealth data and appalling health disparities statistics requires us to take seriously Jayna Brown’s admonishments: “abelism and racism are imbricated within scientific advances” (326), and “black, queer, and disabled people . . . are painfully aware of the way power is present in any attempt to represent material reality” (337).

Brown’s reproaches resonate for rhetorical theorists who have long been concerned about the relationship between power and material-discursive constructions of reality. Kristie S. Fleckenstein argued that “it is only *through* the body that competing (con)textualities materialize” (284, emphasis in the original). Wendy Hesford made a similar case: Attending to bodies as material rhetoric “prompts consideration of how individual and collective struggles for agency are located at the complex intersections of the discursive and material politics of everyday life” (197).

¹Ronald Bayer and Sandro Galea also note that the US government’s investment in public health infrastructures lags “substantially behind that of other high-income countries” and that “the proportion of NIH-funded projects with the words ‘public’ or ‘population’ in their title . . . has dropped by 90% over the past 10 years.” See <<http://www.nejm.org/doi/full/10.1056/NEJMp1506241>> for the full article.

While rhetorical theorists have since attempted to account for complex intersections between language, bodies, materialities, and power by theorizing their intra-actional (Barad) suasiveness as ambient (Rickert) or ecological (Edbauer; Phelps; Syverson), how such assemblages actually perpetuate systemic inequities has not yet been explored fully.

I do not seek to make a causal case about the relationship between wearable technologies and health disparities; rather, I see their parallel emergence as an opportunity to “follow power into places where social theory seldom tends to look for it” (Jasanoff 42). I understand that nonhuman actors and actants place demands “on humans who want to or are forced to deal with them” and, thereby, “structurally condition” (Clarke, “Situational Analyses” 561) certain situations. Based on this, I examine how wearable technologies, even as they afford access to certain kinds of body data, are nonhuman actors that intra-act with other structural conditions to determine whose bodies count. While they inspire epideictic assertions about the emergence of a so-called mHealth revolution, I situate wearable technologies as “politics by other means” (Latour 229). I mobilize precarity as an analytic construct to (a) understand wearable technologies as rhetoric and (b) theorize the imbrication of biotechnoscientific progress with its ineffectuality among particular populations.

Feminist and queer theorists have for some time operationalized precarity as a way to describe contemporary forms of political violence (e.g., Berlant; Butler, *Frames*; Butler, *Precarious Life*; Puar). Extending such work, this article challenges narratives of scientific and medical progress that often accompany the emergence of wearable technologies. I theorize mHealth technologies and their data-generating, technoscientific prostheses under the rubric of precarity,² which is defined by Butler as the political, economic, and social structuration of power that maintains conditions required for securing life (cf. Butler, *Frames*; Butler, *Precarious Life*; Puar).

Data for Health Listening Events

Mindful of the above-described disconnect between (a) increasingly available wearable technologies and mHealth data and (b) the actual health and wellbeing of populations disproportionately affected by certain social determinants (e.g., availability and access to education, food, housing), in late 2014, the RWJF hosted five different listening events across the United States entitled “Data for Health.” Data for Health listening events were structured akin to town hall meetings, wherein expert policy-makers invited members of local communities to testify to their unique experiences that may or may not align with those in positions of policy-making power. Approximately 100 community members attended and participated from five cities (Philadelphia, PA; Phoenix, AZ; Des Moines, IA; San Francisco, CA;

²I am indebted to my colleague, Wendy Hesford, for familiarizing me with scholarship in precarity and human vulnerability during our collaborations and conversations.

Data for Health Advisory Committee Recommendations At-A-Glance

Listening Tour Themes	Data for Health Advisory Committee Recommendations
Establish the data exchange value proposition. Event participants emphasized that people do not have a clear understanding of why certain data should be shared or used.	<ol style="list-style-type: none"> 1. Launch a public awareness initiative on the value of data use and data exchange. (p. 6) 2. Establish a national health information dialogue. (p. 6)
Build trust and community data competence. The themes of trust and protecting data rang loudly across the country.	<ol style="list-style-type: none"> 1. Modernize policies governing health data. (p.7). 2. Strengthen data security and governance. (p.8). 3. Provide preparation for key stakeholders. (p. 8).
Build community data infrastructures. Communities have a greater chance of succeeding at health and well-being when organizations work together to create networks that integrate health with social and community services.	<ol style="list-style-type: none"> 1. Invest in data sharing. (p. 9) 2. Transform data into actionable behavior change. (p. 9) 3. Advocate for open state and local government <i>Data for Health</i> initiatives. (p. 9). 4. Access and use data generated by social media to demonstrate the value of health information. (p.9). 5. Launch a pilot Code for America data analytics program. (p. 9). 6. Address vulnerable populations. (p. 10). 7. Create and maintain a Community Resources Scorecard. (p. 10). 8. Create partnerships around <i>Data for Health</i>. (p. 10).

Figure 1 Data for Health Advisory Committee recommendations from RWJF Health Advisory Committee, “Data for Health: Learning What Works,” 5, 2 Apr. 2015. Web. 22 June 2015 (copyright 2015 Robert Wood Johnson Foundation/Data for Health, Learning What Works).

Charleston, SC). Members of the audience were invited to give voice to their community’s “hopes, aspirations, worries and fears about digital collection, access and use of data for health” (“Data for Health”). In April 2015, the Data for Health advisory committee released a final report³ in which they summarized listening events’ results and recommendations (see Figure 1). Unaccounted for in the report, however, are concerns raised by medical professionals, community organizers, and other citizens whose work involves interfacing with vulnerable populations.

Situational analyses (Clarke, “Situational Analyses”; Clarke, *Situational Analysis*) of real time RWJF listening events indicate that audience participants agree with panelists: Movement and mobility are indicators of human health and wellbeing. However, audience participants define such constructs less in terms of individual bodies and more in terms of larger institutional systems and structures. While panelists spoke of the body as a corporeal entity capable of enacting change through individual agency, audience participants described bodies as situated within competing agencies that are far beyond the purview of autonomous, individual persons. This article’s primary aim is to map competing concerns and definitions expressed during listening events, and based on that analytic work, mobilize precarity as a rhetorical construct that identifies interlocutors’ argumentative divergence. As readers will see, it’s not necessarily that panelists and audience participants disagreed, but that they struggled to find a rhetorical commonplace from which to enact change. As a construct, precarity explains who and what things come to matter in this context. Locating when and where precarious rhetorics emerge in discourses

³Readers can access the full report at <<http://www.rwjf.org/en/library/research/2015/04/data-for-health-initiative.html>>.

and technologies of health and wellbeing is crucial if we are truly serious about revolutionizing healthcare for both quantified selves and selves whose situatedness is silenced.

Bodies and Technology

Some critique the fetishization of mHealth technologies as a form of “healthism.” As a discourse, healthism promotes personal responsibility, individual agency, and control and is “embraced by the socio-economically privileged who are able to position ‘health’ as a priority in their lives and have the economic and educational resources to do so” (Lupton 397). Others have critiqued the revolutionary promise of mHealth as overly techno-optimistic. Studies of mHealth technologies conducted in developing countries, for example, champion cellular phones for ways they enhance communication and improve healthcare on the supply-side. However, according to Arul Chib, such studies present under-theorized, techno-optimistic views whose results lack generalizability beyond the immediate context. One such study praised recently by Susan Blumenthal, MD (Public Health Editor at *The Huffington Post* and former US Assistant Surgeon General) is the Text4baby campaign. Text4baby is a text messaging program that provides prenatal care messages to both prenatal and new mothers. W. Douglas Evans et al. evaluated Text4baby’s effectiveness and found that mothers’ behaviors were constrained by their “social ecological context” (22), despite the informational usefulness of Text4baby messages. The authors conclude that while text messages sent via cellular phone may offer valuable, actionable information or encouragement for new mothers, there are other influential contributors to mothers’ actions—including, but not limited to, their sense of self-efficacy, social norms, smoking and alcohol use, and sleep practices (Evans et al. 27).

Techno-optimism surrounding the interface of bodies with technologies (both wearable and not) in contexts of caregiving has invited careful critiques from feminist, rhetorical, and technical communication scholars. Judy Z. Segal complicates the assumption that Web technologies empower patients and posits instead that they act on the patient by rhetorically constructing them in ways they may not be fully aware. Similarly, in her critique of “univocal rhetorics of e-health’s democratization and patient-empowering change,” Karen Kopelson calls for scrutiny of “medicine’s official disciplinary discourses” (“Writing Patients’ Wrongs” 391). Heeding this call, Kim Hensley Owens analyzed birth plans and women’s rhetorical (dis)ability therein, and found that technologies can silence and “supplant, rather than supplement, bodily knowledge” (251). Even for medical practitioners, the interface between bodies and technologies poses several constraints. In the case of veterinary medicine, Jason Swarts argues that mobile devices “uproot genres from their native contexts,” thereby forcing readers to bear the “literacy burden” (174) of making meaningful resultant information. For Swarts, because mobile devices “replace location with movement” (175), problems arise when users try to generalize evidence derived from mobile devices without acknowledging how said evidence is

constrained by the very contexts in which that information was collected. Bodies, technologies, and their concomitant mediating practices, therefore, are situated within larger material-discursive forces that, over time, act on them in very real ways.

Implications for bodies' situatedness within material-discursive forces are perhaps no more profoundly apparent than in the case of the war veteran's body. In his study of war veterans' injured bodies, Paul Achter defines bodies as "fluctuating signifiers whose forms are molded and shaped by a range of cultural forces" (48) and describes how mainstream media representations of war veterans' bodies reframe bodily injury in terms of personal struggle. This reframing, according to Achter, permits the decoupling of bodily injuries from "the very institutions and policies that made them possible" (56). Also focusing on human bodies injured during war, John W. Jordan explores the interventional role of plastic surgery used to correct bodies that had been altered by war. According to Jordan, plastic surgery as a medical intervention allows veterans to "return home as heroic rather than pitiable figures, thereby preserving the social order through diminishing the personal and social stigma of modern warfare" ("Rhetorical Limits" 331), thereby restoring and reinforcing normative notions of health. For both Achter and Jordan, bodies are material-discursive phenomena through and upon which "a variety of social agents [are] engaged in efforts to shape its public meaning and, by extension, its corporeal form" (Jordan, "Reshaping" 25). Similarly, Mike Michael and Marsha Rosengarten argue, "what the body 'is' and how it emerges depends on the relations of which it is a part and through which it is enacted" (3). In what follows, I extend this line of argument and identify through the lens of precarity how vulnerable bodies are acted upon and conditioned by a host of institutional and technologic phenomena.

Analytic Method: Situational Analysis

After observing two Data for Health listening events, it was tempting to proceed with a rhetorical analysis by critiquing panel members' epideictic rhetorics surrounding the promise of wearable technologies, in general, and mHealth data, in particular. In the listening event transcripts, healthist and techno-optimist discourses abound. However, such an analysis would do little more than reiterate previously published critiques that fall under the rubric of what Celeste M. Condit refers to as "science bad studies" (2). Seeking the possibility of a productive rhetorical commonplace, and in an effort to capture the complexity of the host of human and nonhuman actants that structurally condition whose bodies count, I deployed a version of Adele E. Clarke's situational analysis.

Clarke's situational analysis (a modification to grounded theory "after the postmodern turn" [*Situational Analysis* xxvii]) addresses "the needs and desires for empirical understandings of the complex and heterogeneous worlds emerging through new world orderings" (*Situational Analysis* xxvii). This method affords generative analyses of overlapping and co-existing phenomena by assuming boundaries

between concepts are porous. Researchers can avoid reductionist critiques and map instead how actions, structures, and discourses spill into and onto one another. This method proves especially salient given that wearables involve the co-construction of bodies, biologies, geographies, politics, economics, and technologies.

Clarke provides for researchers a conceptual toolbox as an aid for becoming attuned to intra-acting phenomena. Within this conceptual toolbox are “sensitizing concepts” that help with “locating the stories of particular interest” (*Situational Analysis* 112). Noting that “we the researchers must delimit our stories to those that we can tell coherently” and “the map should help you determine which stories to tell” (*Situational Analysis* 111), Clarke’s conceptual toolbox helps researchers decide what should invite analytic attention. Situational analysis proved invaluable in this case because, although I only had access to two live-streamed RWJF Data for Health listening events (those in San Francisco and Charleston⁴), the corpus included 180 minutes of discussion and approximately 13,000 transcribed words.⁵

Using RWJF listening events as objects of analyses, analytic maps granted a rich understanding of the situatedness of wearable technologies and human bodies within larger systems and structures. Several of Clarke’s sensitizing concepts were generative, including the following: universes of discourse (i.e. identities, commitments, specialized knowledges) / activities / sites / technologies / formal organizations / going concerns / entrepreneurs / reform movements / intersections / implicated actors and actants / boundary objects / discourses. In [table 1](#), I provide definitions for each of these analytic concepts.

In [table 2](#), I provide representative examples from transcripts for each of the above analytic constructs. Because of their overwhelming saturation (Glaser and Strauss), I mapped intersections between the following analytic concepts: “going concerns,” “entrepreneurs,” “implicated actors and actants,” “discourses,” and “technologies,” the results of which yielded analyses of how panelists and audience participants’ concerns about mHealth data and technologies both correspond in some cases and clash in others. I explicate these overlaps and divergences further in the examples below.

mHealth: Going Concerns, Entrepreneurs, Implicated Actors and Actants, Discourses

In what follows, I provide representative examples that illustrate intersections between going concerns, entrepreneurs, implicated actors and actants, discourses, and technologies. I identify the presence of at least four patterns of precarity in

⁴The other three, while not live-streamed, were live-tweeted and blogged about. According to Renee Woodside, the RWJF’s communications associate, they do not have direct transcripts from the entire listening tour.

⁵These video data in their raw form are available publicly on YouTube. Charleston, South Carolina: <<https://www.youtube.com/watch?v=0CxQWtXhrYU>>. San Francisco, California: <<https://www.youtube.com/watch?v=S-anKfigTy0>>.

Table 1 Analytic Concepts and Definitions

Analytic Concept	Definition
Universes of discourse	“social worlds . . . and principal affiliative mechanisms through which people organize social life” (Clark, <i>Situational Analysis</i> 46).
Activities	Human or nonhuman labor.
Sites	A locatable space or place.
Technologies	An actor or actant that helps to organize work and/or affect activity.
Formal organizations	A group of people with a particular disciplinary concern focused on resolving or investigating that concern.
Going concerns	“Assumptions about what activities are important and what will be done” (Hughes, qtd. in Clarke, <i>Situational Analysis</i> 46).
Entrepreneurs	Human actors who are “deeply committed and active individuals and cluster around the core of the social world and mobilize those around them” (Clarke, <i>Situational Analysis</i> 46).
Reform movements	A social or political movement organized around a desire to change some aspect of medicine, health, technology, or society.
Intersections	Overlap between one or more concepts.
Implicated actors and actants	“Actors and/or actants silenced or only discursively present—constructed by others for their own purposes” (Clarke, <i>Situational Analysis</i> 46).
Boundary objects	A human or object (material and processural) that “resides between social worlds” and is “ill structured,” or has “interpretive flexibility” (Star 604).
Discourses	“Modes of ordering the chaos of the world” (Clarke, <i>Situational Analysis</i> 54).

particular. First, panelists make several assumptions about wearables’ and mHealth data’s abundance and ubiquity. Second, panelists extol the power of data translation and collaboration in creating a “culture of health.” Third, panelists highlight technological design as a key contributor to achieving a culture of health without acknowledging how such designs might also limit such an achievement. Fourth, panelists praise the potential of data analytics for the creation of a culture of health but fail to attend to what such analyses might not capture. Readers will note that while audience participants agree with panelists about the abundance and potential

Table 2 Analytic Concepts and Representative Examples

Analytic Concept	Representative Examples
Universes of discourse	Economics: “Our industry is the worst of all industries. I mean BMW would never build a car without talking to people who are going to buy the cars. And we’re having conversations without the patients way too many times.”
Activities	Translating data into information; sleep; moving; cycling; “connecting the dots”; self-care; monitoring
Sites	Doctors’ offices; churches; food deserts; schools; hospitals
Technologies	Electronic health record; sensors; wearables; mobile phone; toilet; health fitness application
Formal organizations	Government agencies; RWJF; foster care; churches; Google; The Quantified Self; JawBone; Open mHealth; silicon valley
Going concerns	Privacy; access; health; wellbeing; technological ubiquity; abundance (of data); health disparities; truancy; low income housing; daycare; safety; sustainability; longterm investment; regulations; education
Entrepreneurs	JawBone; mHealth; Commonwealth Fund; Quantified Self
Reform movements	mHealth revolution; culture of health; grant funding
Implicated actors and actants	Physicians; homeless; community health organizers; foster children; people with chronic illnesses; African Americans
Boundary objects	Data; movement; mobility; wellbeing/health
Discourses	Statistical; anecdotal; epideictic

usefulness of mHealth data, they testify to how creating a culture of health requires attention to broader institutional and structural actants.

Precarity Pattern 1. Assumptions of Abundance and Ubiquity

Almost every panel participant began their speech with an appeal to the ubiquity of mHealth technologies. The panelist representing the RWJF began by asking audience members to raise their hand if they had a smart phone, wearable device, an iPad, and so on. Everyone in the audience raised their hand. Similarly, in Charleston, the session opened with the following testimony:

We’re awash in technology. 87% of office-based physicians now use an EHR [electronic health record], up from 18%. Globally, more people have a mobile phone than have a toilet. The average US adult spends 11 hours a day on electronic media. 26 billion “things” will be on the internet by 2020 [I]t will be flooding us and it will complement the data from the EHR to give a much more holistic view. Open mHealth will break down barriers for data to flow from devices.

One panelist—the president of the Commonwealth Fund—highlighted wearables’ ubiquity by focusing on the industry’s economic success.

It’s very clear that consumers are into the adoption of health data collection. 46 million Americans use health fitness apps. It increased by 18%. Americans are wearing healthcare related technology. 75% of consumers believe wearables improve wellness. Biosensors are coming down the line. We can be sure this is going to happen because venture capitalists are pouring money into this. They obviously see something here that’s worth investing. In 2014 there was kind of a breakthrough in this investment type if you can see the extent to which silicon valley began pouring money into mobile health just grew exponentially. Most of that money is going into monitoring.

A panelist representing the company Smart Patients (who was also the former chief health strategist at Google, and self-proclaimed “first guy in medical school who had the Palm Pilot”) exclaimed: “Oh my god the data! I studied what people across the globe were putting into the Google search box. Drugs. Symptoms. Diseases and supplements, test results, good news, bad news.” Implicit in these precarious assumptions about ubiquity and abundance is the promise of an impending healthcare revolution.

Precurity Pattern 2. The Power of Data Translation and Collaboration

After articulating mHealth data’s ubiquity and abundance, panelists then went on to rationalize the delay in the RWJF’s idealized culture of health by focusing on the need to better translate data and better collaborate. For example, the panelist who identified that more people have cell phones than toilets explained that what’s needed now is a “mechanism to communicate and identify what’s happening at the community level.” Specifically, they need to “use all our great brain trust at this level to understand what’s really happening here and then connect with those institutions to collaborate.” Another panelist argued that the challenge now is to “turn this data into information to build these cultures of health . . . [T]hat’s a complicated problem. A technical problem. But not primarily a software, hardware problem. It’s a people issue. A community issue.” In addition to translation of data and collaboration, panelists identified good technologic design as necessary for creating a culture of health.

Precurity Pattern 3. The Promise of Technological Design

A panelist representing JawBone, Inc. made the case that the work of companies like his “is the natural heir” of Jon Snow’s research in 1854 that helped track the Cholera outbreak in England. This panelist argued, “If you build great products, if you design things people love, you’ll have the ability to help and engage.” He also described how, because of his product’s design, he “can tell you what people

are eating And in fact if you buy our app, if you log a breakfast today, one will be donated by Quaker Oats. You can do this at no cost and it helps someone else.” The JawBone product is framed, therefore, as more than a wearable technology designed to monitor one’s movement, sleep, and other body data, but also give back to the community. Again emphasizing the impact of technological design, this panelist described how JawBone data were used to map sleeping habits during the magnitude 6 earthquake in Napa Valley.

What if I could tell you that we’re able to measure that 85% of people didn’t go back to sleep? So if you’re operating a school or hospital, what does it mean? It could mean we should start school or classes later the next day. It doesn’t take an MD to know you need a good night’s sleep. These sources are only knowable when people build consumer products that people invite in their lives.

For this panelist, connecting technological design with product consumption is the gateway to meaningful decision and policy-making.

Precarity Pattern 4. The Potential of Data Analytics

In addition to design, skills in data analysis were identified as a factor for creating a culture of health. The Smart Patients CEO panelist described that while working for Google, “behind each of these searches were people,” and these searches could become a meaningful story “if we could only connect the dots.” He notes that data is “really just a projection, a shadow of these rich, complex stories.” Another panelist argued, “There’s a buzzword called big data analytics. We’re at the dawn of a new era with respect to analyzing data The algorithms that translate data into recommendations for daily action are basically non-existent right now and they have to be tested.” Another panelist exemplified the power of big data analytics by describing his state’s recent mapping of food deserts based on those analyses: “How can we build an infrastructure that can affect this issue so that individuals in this community can start affecting their own condition, thereby building their own individual and family wealth?” Notable here is this panelist’s replacement of “health” with “wealth.” Here, the outcome of translating and “connecting the dots” is individuals’ empowerment and ability to affect their own condition.

Conditions Required for Attaining a Culture of Health

Audience participants challenged panelists’ precarious rhetorics and testified to other conditions required for attaining a culture of health. For example, one audience member asked: “Regarding data from devices, the people we need to reach . . . the people with chronic diseases don’t wear them. Should the emphasis be placed on getting these people cheap wearables for collecting data?” It would indeed seem that panelists were advocating for everyone to wear monitoring devices as a way to make better decisions. However, a panelist replied:

No. I think we have to ask the question: what problem are we trying to solve and for whom? Too often when we're having conversations about data, we're talking about the problems we have in this room and the problems we have and not the problems of that member of that community who is under represented in the wearables sector.

This was the first acknowledgment by panelists that wearable technologies are ubiquitous only among certain populations, and that mHealth data, while abundant, are not representative. In that same line of questioning, another audience participant offered the following testimony:

We deal with African American health. We have tons of data. Tons. We have so much data it's overwhelming. And yet I still get calls or people contacting me to get more interns. Yet, our health disparities have not shifted to a positive outcome. They're getting worse. So my question to you all is: what's a professionally or politically correct way to say, "I don't wanna do this anymore. Because we're still sick. And we still have huge inequities." At what point do we say "we've got enough data." When do we go to the resolve? How do people like myself . . . community based people . . . we're struggling just to stay afloat as an entity. There's an appearance that there's a whole lot of information. A whole lot of data. A lot of people are getting paid. But we as African Americans are still very sick. So what good is this?

All of the panelists replied to this participant with variations of the following:

- "The thing that's the most discouraging about this thing called data is that you don't actually have any power in your life to make any change in the thing you see in the data."
- "I suspect that what you just said is going to be the most important question asked all day. Thank you for it. It's also a little bit embarrassing because I don't think we have a very good answer."
- "Like she said, there's a lot of data. Sometimes it means getting from the point of looking at data to ask what's the matter to what matters? That's a shift; a different mindset."
- "Reminds me of that big grant they got to provide iPads for a school. The school staff took pictures of the condition of bathrooms and water fountains . . . conditions on the ground can be very powerful, and in this case very embarrassing for the administrators."

Here, panelists seem to agree that conditions required for creating a culture of health include more than the availability and suaveness of mHealth data. Moreover, focusing only on translating, collaborating, and analyzing wearable data (to say nothing of wearables' design) neglects other institutional and technological actants.

Highlighting this neglect, another audience participant argued that the biggest challenge to creating a culture of health she has seen over the years is that “government agencies drop into a neighborhood where we see substantive health disparities,” and then data from those studies are lost when grant funding is lost, or researchers move on to a new, more publication-worthy subject. According to this audience participant, there is, indeed, an abundance of data about “truancy numbers, daycare numbers, low income housing numbers,” but because there has not yet been a substantive, long-term investment from government agencies “beyond a three year grant,” those data are rendered impotent. She closed with the following: “You didn’t name it data and technology. Although we’re talking about tech tricks, it’s data. And for me, one of the biggest challenges is the investment in government to help really move the data that we have and the long term investment in community.” Seemingly unwilling to acknowledge that perhaps they had spent too much time focusing on “tech tricks,” only one panelist responded (albeit briefly) with, “I think that’s such an important statement.”

Reinforcing the role of infrastructural actors in prohibiting a culture of health, audience participants also asked about the “patchwork of regulations and laws that are inconsistent . . . not harmonized across the local, state and federal level,” to which a panelist replied,

When you build great products and solutions, and people invite them into their lives they start using them, living with them, literally going to bed with them. They will find ways to access, share, and start to make sense of data that are more powerful than what people have been thinking about and regulating around and trying to predict decades ago.

Here again, the panelist reverts back to good technological design and consumers’ financial investment as central to creating a culture of health.

One listening event ended with a profound statement from an audience participant about another institutional actant that structurally conditions vulnerable bodies’ health.

If you’re a kid in foster care you can’t get your data. What matters is yes your health of course, but all the other stuff around you;[:] your housing, your education, your safety. All those other things. And if you’re not paying attention to that, you’re only getting a piece of the puzzle here.

Similarly, another audience participant who works in community health noted, “We have a ton of data. We have a very robust health information exchange that encompasses every emergency room department in our community. We have health information on every single patient in our community since 2008.” And yet, this audience participant added, she and her colleagues are hamstrung by the major financial undertaking it is to store and maintain these data. Panelists seemed to interpret these two concerns as issues of access and privacy.

One panelist in particular (the co-founder of the Quantified Self) spoke about access and self-care, discovery, and expression and bemoaned barriers to access. He argued, “Not only do you not have the legal right to that data, but there isn’t even a consensus that you should have access to that data. There isn’t even a common understanding that access to your data is good.” Another listening event closed with a panelist’s remark about what appears to be an argument for data citizenship.

I think there’s a bit of responsibility about our data. Certainly it should be anonymized and protected but we’re part of a polity. A common effort. So we’re taking the discussion of data away from how do I be safe and what is privacy for me, and reframing it as, what is our responsibility in data citizenship? What is our relationship and our duty to ourselves and to each other?

At one point, a representative of the RWJF did acknowledge that there is, indeed, a “population that is in danger I think of being left out of this revolution,” and that

[t]hese are the people who are really sick. The people who desperately need to have their information monitored and included in the care process and who are in some ways the least able to participate often in that process. And they are a goldmine of societal opportunity for safety improvement, quality improvement, health improvement.

Audience participants echoed this sentiment, albeit without the opportunistic language. Addressing how one panelist used mHealth data to enact infrastructural change regarding food deserts in South Carolina, an audience participant argued:

But at the end of the day where that diabetic patient lives . . . [,] if they live in a food desert, the clinical system alone can’t fix that. I hear very little discussion other than tracking individual behavior. What are we going to do to invest and actually get data at the population level about health?

And finally, consider one last observation made quite deftly by an audience participant:

The interesting thing that struck me is we’re focusing on how many individuals have cell phones more than toilets. But . . . we know who doesn’t have toilets. We know who those people are. Maybe that’s a better group to focus on. Because we have that data. Our conversation this morning is “let’s get that cell phone data.”

As readers see from audience participants’ testimony, casting the complexity of care as algorithmic translation of data into actionable knowledge is an oversimplification. Members in the audience testified that despite copious amounts of already existing and actionably sound data, their local communities continue to suffer, are increasingly disadvantaged, and only grow sicker over time. Panelists

appeared unable (or unprepared) to comment on how to improve material conditions inhabited by vulnerable bodies, and instead attributed health disparities to underdeveloped methods for translating, collaborating, analyzing, and protecting data.

Precarious Rhetorics and mHealth Technologies

In her argument that “the use of health to encompass almost all that is worthwhile and valuable is another manifestation of the reigning ideology of futurism,” Karen Kopelson concludes, “there is no Being which is free from the consequences of being-in-relation-to-others [;] . . . to be is always already to be in a state of peril” (“Radical Indulgence”). Acknowledging this persistent state of peril resulting from our being-in-relation-to, critical theorists have turned to precarity as the basis for understanding communities’ material and corporeal interdependencies, obligations, and ethical responsibilities (Puar). Precariousness, as employed by these scholars, does not refer to an “existential sameness or equality” (qtd. in Puar 172). “On the contrary,” Isabell Lorey argues, precarity “is a notion of relational difference in interdependency with others” (qtd. in Puar 172). In other words, precarity gestures at how material and corporeal recognition happens only when one submits oneself to social norms, and how those social norms thereby condition the very way one may be recognized. The final report and transcripts from the RWJF’s Data for Health events demonstrate that citizens’ privacy, consumers’ access, and individuals’ empowerment are normative ways of understanding health. These are precarious rhetorics.

For Judith Butler, precarity—which she defines as “politically induced condition[s] in which certain populations suffer from failing social and economic networks of support” (*Frames* 35)—indicates how some populations “become differentially exposed to injury, violence, and death” (*Precarious* 25). Butler maintains that only some bodies—in particular, those that fit within pre-existing societal norms—are recognizable. Precarity, therefore, “allows us to think about the slow death that happens to targeted or neglected populations over time and space” (169). Similarly, Lauren Berlant describes precarity as life lived through a “condition of dependency,” and hinges on the “dictates and whims of the market” (192). Nicholas Ridout and Rebecca Schneider make the case that as a construct, precarity “undoes a linear streamline of temporal progression and challenges ‘progress’ and ‘development’ narratives on all levels” (5). Market effects, product design, narratives of ubiquity and progress, individual agency and wealth, and translations of data into actionable information pervaded panelists’ propositions for how to achieve a culture of health. Audience members, however, offered experiential and anecdotal evidences that testified to how these normative notions of health culture are perilously precarious.

As the normativity of epideictic, technologically progressive, and economically driven discourses surrounding mHealth methods for monitoring movement and

mobility increases, rhetoricians must be attuned to patterns of precarity. When rhetoricians study bodies as material-discursive phenomena, we must account for precarity as an analytic derivative of complex and competing material and discursive renderings of health, wellness, and human being. When we fail to do so, we risk falling into the very same healthist, techno-optimist, futurist trappings we critique. Particularly apt for countering these discursive trappings is Ann V. Murphy's notion of "corporeal humanism," which accounts for "the ontological fact of vulnerability, dispossession, and exposure" while remaining "respectful of the radically different ways that vulnerability and dispossession are lived" (Murphy 589; see also Cavarero's "ethics of relation"). As an analytic, precarity helps rhetorical theorists identify, as Rosi Braidotti, argues, how our information society "is, in reality a concrete, material infrastructure" that decrees freedom and mobility even as some human and nonhuman bodies are rendered "disposable others" (*Transpositions* 6–7). As our analytic attention increasingly turns toward complicated intra-actions between people, environs, and things, precarity as an analytic helps identify systemic inequities hiding out in a host of material-discursive forces.

Framing wearable technologies in terms of precarity accounts for embodied intra-actions with institutional systems and structures—systems and structures that may, in fact, *stifle* movement and mobility. Identifying patterns of precarity in techno-optimistic discourses exposes the mythical nature of an individual, agentic body, and requires redefining movement as more than corporeal mobility through time and space, but also the material machinations that make possible bodily being.

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