Somatechnologies Of Body Size Modification: Posthuman Embodiment And Discourses Of Health

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SOMATECHNOLOGIES OF BODY SIZE MODIFICATION:
POSTHUMAN EMBODIMENT AND DISCOURSES OF HEALTH

by

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A dissertation submitted in partial fulfillment of the requirements for the degree of Doctor of Philosophy in Texts & Technology in the Department of English in the College of Arts & Humanities at the University of Central Florida Orlando, Florida

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Major Professor: Melody A. Bowdon
ABSTRACT

This project focuses on persistent gaps in philosophies of the body: the enduring mind-body divide in accounts of phenomenology, the unfulfilled promises of representing and inhabiting the body in online and virtual spaces, and the difference between health as quantified in medical discourse versus health as lived experience. These tensions are brought to light through the electronic food journal genre where the difficulty in capturing pre-noetic, outside-consciousness aspects of experience and embodied health are thrown into relief against circulating cultural discourses surrounding health, body size, self-surveillance, and self-care.

The electronic food journal genre serves as a space for users to situate themselves and their daily practices in relation to medicalization, public policy, and the conflation of health and body size. These journals form artifacts reflecting life writing practices in digital spaces that model compliant self-surveillance as well as transgressive self-care. The journals instantiate the mind-body-technology interactivity of extended cognition, but also point toward a rupture in the feedback loops that promise to integrate pre-noetic aspects of being and experience.

By exploring the tensions inherent in these online food journaling spaces, this project concludes by offering a PEERS heuristic/heuretic for assessing theories and technologies of embodiment and health for their ability to access what resides in the “remainder” of current embodiment philosophy and to identify the aspects of lived experience left unattended in USDA health policy, food journaling interfaces, and embodiment philosophy. The PEERS model can be used to evaluate existing technologies for their capacity to map true mind-body-technology interactivity and to build new theory that accounts for a fuller, more nuanced approach to understanding embodied reality and embodied health.
For Candy an iPhone…
an iPad for Chips.
“To the App Store!” he said,
“…and farewell to those hips!”

From “The Story of Farmer Munch”
Munch-5-A-Day iPhone App

“If you devote more space in your diary to what you eat each day than to what you did that day, you’re on a really sick diet”

Marilyn Wann

FAT!SO?: Because You Don't Have to Apologize for Your Size
ACKNOWLEDGMENTS

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<tr>
<td>ASDAH</td>
<td>Association for Size Diversity and Health</td>
</tr>
<tr>
<td>BMI</td>
<td>Body Mass Index</td>
</tr>
<tr>
<td>BMR</td>
<td>Basal Metabolic Rate</td>
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<tr>
<td>EDNOS</td>
<td>Eating Disorders Not Otherwise Specified</td>
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<td>Fat and “Fat”</td>
<td>Quotations draw attention to the constructedness of the notion of fat and fatness. Used with and without quotations depending on context throughout the project.</td>
</tr>
<tr>
<td>FNDDS</td>
<td>Food and Nutrition Database for Dietary Studies</td>
</tr>
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<td>GUI</td>
<td>Graphic User Interface</td>
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<td>HAES</td>
<td>Health at Every Size</td>
</tr>
<tr>
<td>NAAFA</td>
<td>National Association to Advance Fat Acceptance</td>
</tr>
<tr>
<td>NLEA</td>
<td>Nutrition Labeling and Education Act</td>
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<td>Obesity and “Obesity”</td>
<td>Quotations draw attention to the constructedness of the notion of obesity. Used with and without quotations depending on context throughout the project.</td>
</tr>
<tr>
<td>RDA</td>
<td>Recommended Daily Allowance</td>
</tr>
<tr>
<td>Somatechnics</td>
<td>Refers to the link between the body and technologies</td>
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<tr>
<td>USDA</td>
<td>United State Department of Agriculture</td>
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CHAPTER ONE: INTRODUCTION

Technology coevolves with the physical body to offer new affordances and new ways of being-in-the-world. When coupled with concern over body size management as a measure of health, technologies like the electronic food journal highlight our subjectivity in relation to our bodies, to others, and to our environments. As cognition and pre-cognitive processes cross the boundaries of skin into these environmental applications (through handheld devices and the Internet), we engage with an antiseptic and controlled version of the body disconnected from physicality and materiality. Despite these cognitive tools and the malleable, flexible identities they allow, we remain bound to the world proprioceptively through flesh. The project outlined here aims to show how digital narrative, embodiment theory, and fat studies overlap to inform—and are informed by—this practice of food journaling.

Studying the somatechnics of digestion and the fundamental act of eating tells us about our relation to our selves. The inextricable link between the body (soma) and our techniques and technologies of being-in-the world (technics) foregrounds the gap in current understandings of embodiment and the persistent legacy of Cartesian duality. When mind-over-matter body management fails, the truth of our corporeal existence is revealed. In the richest accounts of phenomenology, in the most high-tech uses of cybernetic extension, and in the realm of overlapping consciousness through multiple feedback systems, the fact remains: “No body, no voice; no voice, no body” (Conboy 305). The food journal as a site of phenomenological investigation, then, gives voice to the body’s lower-order processes and places the body squarely where it must remain: as the center of being-in-the-world.

Using the approaches of electronic composition and the textuality characteristic of the digital age, this project investigates modern subjectivity through the electronic food journal. In
one sentence, this project establishes the social and political situation (chapter two) that gives rise to the food journal as a genre (chapter three) we can analyze to tell us about digital life writing (chapter four) and mind-body-technology interactivity (chapter five) in order to build a heuristic/heuretic for a fuller, more robust philosophy of embodiment (chapter six). The work of this dissertation project will result in theory that spans across studies of embodiment to fatness, through technologies related to body size modification, and within the political project of fat acceptance and fat activism in light of the individual’s interpellation within public health discourse.

**Exigence and Stakes**

This project works at the boundaries of three overlapping and related lines of inquiry in embodiment theory, fat studies, and digital life writing. Together, the questions raised by these areas of study point toward a persistent inability to reintegrate the body and mind and to account for the phenomenology of experience. Fat studies scholars, for example, find a growing gap between (1) the medical and scientific descriptions of and treatments for fat and (2) the lived, embodied realities of fat people and their varied experiences of health and body care. This is a gap between population-level epidemiology and the phenomenological health of an individual person. Interrogating this space between medical and scientific understandings of fat and the lived experience of fat requires us to ask what remains unaccounted for in our understanding of health generally, and how health might be more effectively pursued if this gap might be closed or at least acknowledged.

Similarly, we find gaps in the promise of technology to enact user-feedback systems and modes of production that incorporate the body in the act of self-expression (as well as the production of self) in online and digital spaces. As we look to the electronic food journal as a site
to interrogate the gaps in understandings of fat, we see these journals as exemplars of a persistent rupture in the ability to enact and produce an embodied self in virtual environments. Instead, the acts of online text production that characterize food journal use allow us to perceive the digitization of material reality and the difficulties in marrying the material and immaterial—and equally real—realities of physical and virtual space.

Fat and food journals act, then, as cultural sites to work toward a fuller understanding of embodiment. We have at hand a moment where our medical and scientific capacities and our technological means have outpaced our ability to adequately theorize health, subjectivity, and the phenomenology of experience. This project cannot fully solve the problems it identifies, but it does offer a model for moving toward a more robust account of embodiment that is applicable in medicine, health, virtual spaces, and to uses of technologies of all kinds. To more fully preface the work of the project as a whole, I will briefly outline the lines of inquiry that will be pursued in later chapters.

Fat: Medicalized and Personalized

I want to begin with a note on terminology within sections of this project. I draw a distinction between “obesity” as it is constructed in the medical/scientific literature and “fat” as lived experience. Within work published by fat acceptance scholars, the common practice is to use quotation marks around terms such as “obesity,” “epidemic,” and “overweight.” The consistent use of quotation marks around these words draws attention to their constructedness and challenges the power of the medical establishment in categorizing body sizes by conformity to a normative standard. We can see this practice in the work of Bordo, Braziel and LeBesco, Cooper, Murray, Solovay and Wann, and in recently published dissertations such as Hannele Harjunen’s work on fatness and liminality. However, this project’s focus on food journaling also engages research on the physiology of eating and digestion—practices described within medical
and scientific communities—which are engaged in the project of body quantification. Therefore, terms like “fat” and “obesity” will be used with and without quotation marks within these varying contexts throughout this project.

This issue of terminology arises from one of the most pervasive current public health initiatives: the fight against fat or “excess” body weight. With increased access to efficiently produced industrialized food, public health concerns have shifted from ensuring adequate nutrition to reducing and restricting food and energy intake. We hear regularly about the “obesity epidemic” and, most recently, the impact of increased body size on children and adolescents. What has caused such an increase in our population’s average body weight? Is increased body fat a public health crisis? What is the impact on individuals when body size translated into medical discourse equates with disease? And how should individuals treat the body, relate to the body, and live *embodied* when the body itself is socially and politically constructed as excessive? Fat studies work responds to these questions.

Answering these questions about health leads fat studies scholars to pursue alternate views of health, counter objectivist claims regarding health, and claim fair treatment of fat people as a civil rights issue. Fat studies scholarship spans the globe, with collections and collaborations involving scholars and activists from the United States and Canada, Great Britain, and Australia; most recently, fat queer studies and Latin American studies have intersected in the *Una Buena Barba* collective (unabuenabarba.com). Scholars from these regions have varying concerns in terms of the political response to fat (obesity surgery, for example, is government-sponsored in Australia while Great Britain, on the other hand, sponsors fat-friendly public health research). With such a diverse collaboration of scholars across several countries, it is essential to note that this project arises in response to issues within the United States (such as United States
Department of Agriculture food guidelines) and does not always take into account variance among countries. To apply these arguments to specific contexts in other countries is an area for further research.

Inquiries into the social and cultural meanings of fat include projects that investigate and produce images of fat in art (as in the work of Leonard Nimoy, George Dinhaupt, or adiposity.com), public perceptions of fat, fat as identity (Bacon, Bordo, Braziel, Kratina, LeBesco, Wann), fat as performance (Bordo, Harding and Kirby, Murray and the dance troupe Fat Bottom Cabaret), fat characters in literature (McCrossin), fat as disability (Cooper, Solovay and Wann), fat public figures (Bordo), legal issues related to fat (Gilman), and the science of fat (Bacon, Lupton, Solovay and Wann). There is a strong affiliation between fat studies and queer studies, with several projects that engage body size in relation to sexuality (Cooper, Heyes, McCrossin, Solovay and Wann). There are several organizations related to the study of fat (such as the National Association to Advance Fat Acceptance and the Association for Size Diversity and Health), and their purposes and activities as relevant to this project will be detailed in later sections.

Scholars working to challenge the medicalization of fat have established that fat, as a lived experience, itself is not a public health crisis (Bacon, Marilyn and Wann), that body size is not a measure of self-discipline (Heyes, Braziel and LeBesco), and that fat is a social issue as much as a health issue (Bordo, Braziel, Gilman, Kratina, Lupton). Perhaps most relevant here, other scholars have investigated fat and its relation to technologization of the body (Sullivan and Murray). The technologization of food becomes relevant to this work, as does the rhetorical work of establishing food as nutrient (Mudry). Chapter two will establish these arguments as they frame situation the that shapes our relation to food through technology.
The Promise of Virtual Environments

We have experienced a radical change in our writing modes over the last 50 years as electronic hypermedia and digital writing began to remediate composition practices. An essential characteristic or promise within virtual writing environments is the possibility of feedback loops that integrate the user and technology in systems of mutual influence, thus changing the experience and process of producing text in novel ways. These virtual texts offer the promise of “creating recursive feedback loops between explicit articulation, conscious thought, and embodied sensorimotor knowledge” (Hayles 135). Where electronic literature departs from print is its function of linking human thought and cognition to machine processes and intermediation. While electronic texts can function as a maze with no end point and no way out, they also provide user agency where the reader/user become co-creator of the text (Bolter, Hayles, McGann, Murray). Food journals, as we will see in chapter three, are one of the textual spaces where this remediation and interactivity occur.

As new media changes the way we read, write, and think, what it means to be literate has likewise expanded in the digital age. In some ways, digital literacy can be equated with “the ability to perpetuate one’s interests and perspectives” in online spaces (Blair, Gajjala, and Tulley 135). The challenge is to maintain a presence in digital space by co-opting online spaces for one’s own political projects (as in the political project of fat acceptance and fat activism). Because decisions relating to the architecture and coding of digital space remain largely black-boxed, it is important for users—and particularly women—to become “authors of technology and therefore self-assured proprietors of virtual spaces” (Blair, Gajjala, and Tulley 149–150). In preparation for this task, schools now must teach students to be authors of twenty-first century texts and to maintain agency and influence in the realm of the digital (Selber). We can see these challenges at work in the texts of food diarists who use electronic food journals as transgressive
spaces to work actively against medicalized notions of healthy body weight in order to affirm their own embodied health practices and experiences.

Perhaps what matters most in the age of digital literacy and multiliteracies is the ability to adapt to quickly changing technologies and environments. In what Robert Johnson calls metis or “cunning intelligence, is the ability to act quickly, effectively, and prudently within ever-changing contexts” (53). While Johnson references metis as a form of adaptability, it has historically been understood as a form of intelligence linked explicitly to the body, with the body as a thinking mechanism (DeCerteau; Dolmage; Hawhee). Flexibility is crucial as new technologies constantly emerge, and finding ways to intelligently couple the body with these systems is deeply integrated with the ability to produce and experience in digital environments. Metis is deeply linked to the body and technological systems. Simply being an eater—or a dieter—in modern terms requires metis in navigating the rhetorical space surrounding food arguments related to health, body size, and nutrition. Metis is exercised in eating decisions daily.

**Persistent Dualism and the Challenge of Phenomenology**

Classical humanism’s legacy of the Cartesian divide—a separation between the rational thinking mind and the material body—forms a legacy that shapes subjectivity even today. In this tradition, the body is rendered subject to the mind and the sense of self is linked more closely to the mind than to the physical form and materiality. Maurice Merleau-Ponty was one of the first philosophers to respond systematically to this divide and his work repositions the body as the center of experience. In his body-centered phenomenology, perception is not divorced from, outside, or somehow above the body, but is dependent on the body’s physical affordances in order to shape reality. The result is “a framework that doesn’t set ‘mental’ and ‘physical’ in opposition to each other” but one in which they work together toward what “phenomenologists call the *lived body*” (Clarke and Hansen 80).
One challenge to constructing an adequate theory of embodiment is that the body can be conceived on many levels at once. There are three lines of investigation in theories of the body:

- the body as an object for natural sciences. These disciplines (biology, medicine) study the organic system of interrelated parts and tend to ignore the body’s co-constitution with interior consciousness.
- the body as a tool or vessel for the willful conscious self. Under this view, the body is conceived as the property of either the individual subject or society. In the Foucauldian sense, this body “requires careful discipline and training, and as a passive object it requires subduing and occupation” (Grosz 8).
- the body as a signifying medium for expression and communication. In this view, “it is through the body that the subject can express his or her anteriority” and “receive, code, and translate the inputs of the ‘external’ world” (Grosz 8). Closely related to Merleau-Ponty’s phenomenology, this view takes into account the body’s primacy in experience and communication with others.

Notions of embodiment, then, conjure these various meanings or ways of viewing the body, for when “we talk about bodies… we talk about sensation, touch, texture, affect, materiality, performativity, movement, gesture, habits, entertainment, biology, physiology, rhythm, and performance, for starters” (Hawhee, Moving Bodies 5).

Merleau-Ponty began the work of integrating these various “bodies” into a systemic whole. He envisions the body not as an object that encapsulates the mind, but an integral part of the self. He writes:

I am my body, at least wholly to the extent that I possess experience, and yet at the same time my body is as it were a ‘natural’ subject, a provisional sketch of my
total being. Thus experience of one’s own body runs counter to the reflective procedure which detaches subject and object from each other, and which gives us only the thought about the body, or the body as an idea, and not the experience of the body or the body in reality. (Merleau-Ponty 231)

This integrationist approach not only privileges the body as *part* of the thinking mechanism (through sensory perception), but disallows for any mental reflection or cognition presumed to be apart from the body (as in scientific reasoning).

While embodiment theory consistently relates back to an anti-dualist approach to the mind/body divide, researchers with varying disciplinary backgrounds, investigative methods, and overarching concerns have continued the work to reintegrate the subject with “what it thinks it is” by turning to physicality as an integral part of subjectivity. For the purposes of this project, I have divided the approaches into the following broad groups:

- **Neurophenomenologists**: this group seeks to understand how the brain/mind is integrated in and processes experience. They are concerned with how sensory perception creates lived experience and how physical experience is represented in the interior space of the mind. The works of Alva Noe and Daniel Dennett exemplify approaches and ruptures representative of neurophenomenology.

- **Somatechnologists**: this group is interested in embodiment in relation to the rise of digital technologies and extensions of the human form. This group imagines a trajectory for future embodiment by understanding the ways in which technology intervenes on the body today. Andy Clark’s view of extended cognition exemplifies the somatechnological approach to understanding embodiment.
• Social theorists: this group seeks to understand how the body—rather than acting as an originary force—is shaped by culture and how cultural meanings are projected onto the body. This group is concerned with the lived experience of non-normative bodies and how social conditions impact embodied living. This group extends to include feminist phenomenologists (though feminists are present in each of the groups presented here). While this group focuses on a wide variety of issues, Chris Shilling’s concept of corporeal realism is broad enough to encompass many approaches to sociology of the body.

There are overlapping concerns among these groups and subdivisions within them. These three categories set up persistent gaps within embodiment philosophy by focusing on competing concerns about the body’s functions and productions of experience. While these areas form the contours of different approaches to embodiment theory, they also provide a mechanism for interrogating the persistent inability to provide a working framework for the phenomenology of experience and perception.

**Neurophenomenology and The Production of Experience**

When cognition was imagined as somehow detached from physicality, the mind and rationality were privileged above materiality. What Descartes conceived as the “soul” or the “mind” later became equated with the brain and the nervous system. The body was sectioned into its mechanical parts, and the whole body became inconsequential as disembodied experience become theoretically possible. Daniel Dennett’s phenomenology, for example, begins with the notion of the brain in a vat. Would it be possible to “plug in” a brain, which, through nothing more than electrical stimulation, could experience the world the same way it is experienced in lived reality? How much of reality can be pared down to electrical inputs and neuronal
responses? As Dennett concludes, “sometimes an impossibility in fact is theoretically more interesting than a possibility in principle” as he admits lived experience cannot, in fact, be replicated without an embodied experience of the surrounding environment (Dennett 4).

While phenomenologists agree that embodiment shapes perception and that the body becomes the primary anchor in the world, theorists disagree about how those perceptions are formed. Alva Noe’s theory of enactive perception privileges the affordances of the mobile body and movement as “we enact our perceptual experience; we act it out” (1). For Noe, “we ought to reject the idea—widespread in both philosophy and science—that perception is a process in the brain whereby the perceptual system constructs an internal representation of the world” (2).

Dennett, however, holds to the notion that while embodiment relies on interactivity, information is processed according to an architecture of mind known as the Multiple Drafts Model. Under this model, “all varieties of perception—indeed, all varieties of thought or mental activity—are accomplished in the brain by parallel, multitrack processes of interpretation and elaboration of sensory inputs. Information entering the nervous system is under continuous ‘editorial revision’” (Dennett 111). Dennett’s architecture of the human mind works thus:

There is no single, definitive ‘stream of consciousness,’ because there is no central Headquarters, no Cartesian Theater where ‘it all comes together’ for the perusal of a Central Meaner. Instead of such a single stream (however wide), there are multiple channels in which specialist circuits try, in parallel pandemoniums, to do their various things, creating Multiple Drafts as they go. Most of these fragmentary drafts of ‘narrative’ play short-lived roles in the modulation of current activity but some get promoted to further functional roles, in swift succession, by the activity of a virtual machine in the brain. The seriality
of this machine… is not a ‘hard-wired’ design feature, but rather the upshot of a succession of coalitions of these specialists. (Dennett 253-54)

While Dennett’s Multiple Drafts Model and Noe’s enactive perception align in their rejection of Descartes’ Central Meaner, Noe rejects the notion of the mind creating representations of any sort. He asks, “Why should the brain go to the trouble of producing a model of the bottle when the bottle is right there to serve as a repository of information about itself?” (62). For Noe, experiential content is always virtual. We cannot see all sides of an object simultaneously, yet their characteristics are virtually present to us because we retain skill-based access to them.

Noe’s enactive perception is therefore incompatible with the idea of the brain in a vat, for the brain itself cannot store the richness of detail or recreate the physical affordance of moving around an object in order to sense its physical properties. Rather, “perceptual content is… virtual all the way in” (Noe 193). Through our body’s affordances of either moving around an object or moving our eyes in order to imagine what is around the object, the environment contains all of the information our bodies need, rendering the notion of a mental representation inefficient and redundant. While Dennett and Noe agree on the primacy of the body in lived experience, they and other neurophenomenologists disagree on how precisely these functions are carried out.

What is sure, however, is that the body itself never acts alone but in concert with its environment. The body, then, is less a Cartesian object and becomes instead an interface for interactivity. In this understanding of the physical form, the circuit opens to include elements of the environment into subjectivity. Somatechnologists work to understand this mind-body-technology interactivity question left unanswered through neurophenomenology alone.
Somatechnics and Environmental Factors in Embodiment

For somatechnologists, the mind-body problem can be better understood as “the mind-body-scaffolding problem. It is the problem of understanding how human thought and reason is born out of looping interactions between material brains, material bodies, and complex cultural and technological environments” (Clark, *Natural-Born Cyborgs* 11). Because lived experienced depends upon interaction with the environment, cognition is understood as extending beyond the body itself (as imagined by borders of flesh). Clark’s concept of “BRAINBOUND locates all our mental machinery firmly in the head and central nervous system, EXTENDED allows at least some aspects of human cognition to be realized by the ongoing work of the body and/or the extraorganismic environment. The physical mechanisms of mind, if this is correct, are not all in the head” (Clark, *Supersizing the Mind* 82). Andy Clark’s theories of extended cognition and mind-body-environment interactivity begin to set the framework for a subjectivity that accounts for information-processing using tools located outside of the physical form.

This is not to ignore that the central nervous system (sometimes imagined simply as the brain) plays an essential role in experience. Some models of embodiment—namely connectionist models—take the space *between* neuronal units to be the loci of cognition/experience, and these units can extend beyond the physical nervous system to include its inputs and environmental influences (Wilson). This focus on what happens *between* units accounts for human malleability, for “if any part of the structure of a traditional AI model is removed, then the model itself will cease to function” (Wilson 10). On the contrary, “Brittleness is not a feature of human cognitive systems; they are remarkably resilient to all manner of lesions and alterations. When they are damaged, they tend to decay gracefully rather than crash” (Wilson 10). Andy Clark describes the “graceful decay” of Alzheimer’s patients living in their own environments: they use post-it notes
to remember things their minds can’t retain, they leave frequently-used dishpans within the line of sight, and they create environmental scaffoldings to ameliorate the decline of mental function. These are the spaces *between* neuronal cognition and environmental offloading that become essential to extended conceptions of embodiment.

The extended view of cognition acknowledges that our brains, contrary to what we might like to think, are “bad at logic and good at Frisbee” (Clark, *Natural-Born Cyborgs* 5). Our minds excel at pre-noetic, proprioceptive integration of sensory inputs but require support for conscious deliberation and the rational thought Descartes prized. What Descartes failed to account for is the “cognitive hybridization” that “is an aspect of our humanity” (Clark, *Natural-Born Cyborgs* 4). In practice, our brains are incomplete cognitive systems that solve problems by linking with external supports in a matrix that can never be fully teased apart. For somatechnologists, this matrix is the crux of lived, embodied experience. Accounting for each of these constituents in our experience and acknowledging the interactivity and interdependence between the liberal humanist self and the environment around us allows us to rethink subjectivity in a way that more adequately reflects the richness of our environments.

In the language of the enactive approach to embodiment, the brain becomes just “one element in a complex network involving the brain, the body, and the environment” (Noe 214). Andy Clark adds the component of technologies, noting that “our tools are not just external props and aids, but they are deep and integral parts of the problem-solving systems we now identify as human intelligence. Such tools are best conceived as proper parts of the computational apparatus that constitutes our minds” (*Natural-Born Cyborgs* 5-6). The thinking *I* is here represented not just beyond the mind into the central nervous system, out to sensory inputs and physical affordances of the natural environment, but also into our built environments and the tools and
technologies we use to sustain ourselves. These count as our cognitive systems. The tools are essential, as they provide means of encoding, storing, manipulating, and transforming data more efficiently than the human brain on its own.

Tools as primitive as post-it notes for the Alzheimer’s patient are rarely thought of as technological, yet they function as cognitive supports in ways that outline the mind-body-environment-technology interactivity that marks contemporary subjectivity. There exists "a chiasmatic interdependence of *soma* and *techne*: of bodily-being (or corporealities) as always already technologised, and technologies as always already enfleshed" (Sullivan and Murray 3). When we begin to think of technes not as "something we add or apply to the body” but as “dynamic means in and through which corporealities are crafted,” only then can we begin to grasp the full complexity of embodied subjectivity (Sullivan and Murray 3).

**Sociology and the Cultural Body**

Rather than focusing on the internal processes or technological extensions of physical and cognitive embodiment, social theorists focus on the lived experience of embodiment in relation to culture. Concerned with the aspects of society that seek to control, repudiate, dominate, or otherwise intervene on the body, sociologists define the body as a “multi-dimensional medium for the constitution of society” (Shilling 199). For them, the body is a way to understand not only subjectivity, but is the basis for understanding the whole of human interaction and power dynamics. Chris Shilling’s concept of corporeal realism encompasses the ways in which the body relates to social theory and has been linked recently with the economy, technology, and society. His corporeal realism “recognizes a distinction between embodied action and social structures” (Shilling 199).
Feminists have looked to embodiment theory with renewed hope for a better account of lived experience that incorporates the physical body and experiential perception into conceptions of real conditions. Elizabeth Grosz (94) describes how Merleau-Ponty’s phenomenology:

- works against binary logic (and therefore phallogocentrism)
- emphasizes lived experience/perceptions, and
- focuses on the body-subject.

In this conception, lived experience is not outside social, political, historical forces and cannot provide an outside (or any one authoritative) vantage point. Experience is taken seriously in this account of perception, and is not considered untrustworthy but rather as worthy of investigation and reflection. Located midway between mind and body, the looping mechanism of Merleau-Ponty’s sensory perception better accounts for lived experience.

Within these accounts of embodiment and society, social practices such as “the development of cosmetic and transplant surgeries, developments in DNA replication, and the rapid advance of ‘cybertechnologies’” can all be viewed as instances of embodiment intervened upon by social mores and pressures (Shilling 64). In interrogating these practices, sociologists interested in embodiment theory illuminate the larger cultural forces that remain unseen in neurophenomenological or somatechnological conceptions of the body. In the context of sociology, it is “the cognitively reflexive monitoring and changing of action that have acquired a unique significance for the exercise of agency and the fate of ‘structures’” in the era of digital technologies (Shilling 65). While Dennett and Noe can account for the internal representational processes of phenomenological experience and Clark can outline the offloading and integration of technological supports for extended embodiment, social theory remains important as a way to
access the forces of culture acting upon bodily comportment, regimentation, and lived experience.

Limitations of Embodiment Theory

While embodiment theory attempts to answer the flaws of Cartesian dualism by reintegrating the body into cognition, it does not solve the problem of accurately accounting for the phenomenology of cognition itself. Even with advancements in neuroscience, as of now “there is no account, even in roughest outline, of how the brain produces consciousness” (Noe 210). We can accept a model of mind “as ‘enactive’—as embodied, emergent, dynamic, and relational; as not homuncular and skull-bound.... But it’s another thing to have a corresponding direct experience of this nature of the mind in one’s own first-person case” (Clarke and Hansen 78). Embodiment theory, in all its richness and attention to physicality, interactivity, multiplicity, and permeability still faces the dilemma of “understanding how ‘mere matter’ can acquire the intrinsic unitary characteristics of both the living being and the conscious point of view” and of describing that phenomenon from within its experience (Noe 231). Hayles’ discussion of a posthuman embodiment replete with boundary crossing and permeation can be “too vague. It is not at all clear what exactly such ‘permeation’ might amount to, given the very different operational fusions being asserted” (Clarke and Hansen 9). How physiological processes give rise to experience remains a mystery. Embodiment theorists debate these areas focusing alternately on Multiple Draft Models (Dennett), extended cognition (Clark), connectionist models (Wilson), enactive perception (Noe), somatechnics (Murray) and so on. One challenge of this project, then, is not only to move the multiple accounts of embodiment forward, but to do so in a way that remains open enough to encompass these varying lines of inquiry about the body and its processes.
Project Outline

The persistent gap in embodiment theory’s view of the neurophenomenological, somatechnological, and sociological body coincides with the inability to reconcile medicalized accounts of fat with lived, embodied experiences of fat. Coupled with open questions about the role of the body in digital and virtual environments, we find a unique opportunity to interrogate these three broad areas of concern in a way that helps to build a fuller, more robust account of embodied health.

In embodiment literature, the issue of eating and digestion is raised as an example of a pre-noetic system that operates outside of purposeful conscious attention. Most of the time, this is true—we do not have to think about secreting digestive enzymes in order to process food. We have, however, made these processes conscious in other ways, for “fit bodies are healthy bodies, the standards of fitness are largely settled, medicine and nutritional science have given institutional imprimatur to a foreordained conclusion, and those who do not measure up are not only courting self-induced disaster, but are socially irresponsible as well” (Waskul and Vannini 231-32). While the cybernetic era has opened up affordances in multiple areas of our lives, they “have created a circumstance in which we not only can ‘embody the self’ but also ‘enself the body’” (Waskul and Vannini 235). In this sense, we remain tied to the persistent expectation to create and enact affordances to act upon rather than just through the body—to regulate and modify those physical forms so essential to our being-in-the-world.

Embodiment now requires body work. Partly due to the Cartesian view of matter as quantifiable and controllable, “increased flow of scientific advice on health related risks [have] served to problematize previously habitual body practices, bringing them into consciousness. Eating, in particular, has been subject to continual and repeated problematization. These changes
and this knowledge flow… ‘condemns’ us to make choices with respect to our bodies and the lifestyle practices which shape them” (Waskul and Vannini 22). The flow of health- and body-centered information is so pervasive that we are hailed by the discourse so that even choosing not to intervene on our bodies is always now a conscious choice. In our posthumanist, interactive social network there is a pervasive push to “pathologize differentially endowed bodies,” including the body that fails to meet visual standards of appropriate body size (Waskul and Vannini 127).

Embodiment theory has not completed its task until it accounts for multiplicity not only in cognitive couplings, but also in presentation of the physical form itself. Being-in-the-world, proprioceptive anchoring, and cognitive extension do not preclude us from having to wonder, “Is the person an owner of his or her body or simply renting it from the political and legal systems, the medical community, the religious institutions, and other networks of power?” (Waskul and Vannini 287). In response to these challenges, this projects builds the argument that food journals emerge as a genre based in response to social situations regarding health, and that these artifacts demonstrate gaps in our understanding of mind-body-technology interactivity. The fundamental act of eating and the life writing practice of electronic food journaling points toward areas where embodiment philosophy is unable to account for the complexity of lived experience. The aim is to build on existing theory across the disciplines of fat studies, digital composition, and embodiment theory to imagine a model of eating and living that reflects a fuller conception of self rather than the mind-over-matter legacy that currently shapes notions of food and health.

Like the limitation of embodiment phenomenology in relation to more general feminist projects, the issue of body modification technologies and body size regulation in particular relate back to the dichotomy “between upper (brain, sight, voice) and lower (genitals, digestion,
excretion, and the derogated sense of touch)” as “the material-scientific sphere of Cartesianism” (Wilson 125). Wilson calls for a critique of body size modification that is willing to “consider the cellular processes of digestion, the biochemistry of muscle action, and the secretion of digestive glands to be the domain of factual and empirical verification” (Wilson 52). Wilson’s call for a feminist reading of the empirical domain of those lower body processes is important for tying in the work of food journaling and digestive physiology with the larger aims of cognition and embodiment theory. In working backward from these complex physiological processes and their modification through technology, we can gain “important insights concerning the contributions and functioning of the biological human action system itself” (Clark, *Supersizing the Mind* 157). Interventions on the body tell us a great deal about how the body itself functions in relation to subjectivity.

When we talk about eating and digestion we are, after all, talking about a system that requires almost no conscious regulation and yet, now that body size has become a social and medical site for intervention, confounds even the most committed physiologists. When we are tasked with the project of reducing our physical form and the “innocent need of the organism for food will not be denied, the body becomes one’s enemy, an alien being bent on thwarting the disciplinary project” (Conboy 133). Hunger, satiety, blood sugar homeostasis—these complex metabolic systems are “not simply the efficient fueling of a pregiven machine, for [they] must provide for the genesis, growth, and continual replacement of the parts comprising the machine” (Grosz 11). This self-constituting process is interrupted when it is intervened upon by social constraints to reduce the mass of the body itself.

Despite the fact that our built environments allow us the illusion of an antiseptic, controlled humanity removed from our animal nature, we are, after all, bodies. Despite our
extended cognition, our tools, our malleable and flexible identities, we are bound to the world proprioceptively through flesh. Studying our treatment of somatechnics in relation to digestion and the very fundamental act of eating tells us about our relation to our selves. In moments when we cannot separate body from mind, when we cannot rationalize our way through hunger or practice mind-over-matter in our body projects, the primacy of our corporeal existence is revealed.

Outline of Chapters

Carolyn Miller’s often-quoted definition of genre as “typified rhetorical actions based in recurrent situations” shapes the structural outline of this project (Devitt 159). I aim to show that food journals demonstrate persistent gaps in mind-body-technology interactivity and form a recognizable genre based in response to social situations regarding health. The result is a model that analyzes embodiment theory and technologies for their ability to push past these gaps in pursuit of a more robust, holistic, embodied philosophy of being that can be applied to health, technologies, and physical and virtual environments.

Chapter Two: Networks of Health and Nutritionism

Chapter two outlines the social, political, and medical forces that shape the situation that gives rise to practice of food journaling. Based in the Foucauldian concept of medicalization and the social policing of health, this chapter will show that the situation of living within this field of forces necessitates a rhetorical response. It considers the history of nutritionism, the impact of medical classifications of obesity, and establishes the individual user as a node within the field of competing forces defining and characterizing health and well-being. This chapter defines the actants comprising the posthuman amalgam in relation to health and body size.
Chapter Three: Genre Analysis of the Electronic Food Journal

Chapter three argues that the electronic food journal is a genre arising in response to the public health situation defined in chapter two. Genre characteristics are defined and tools including Livestrong, MyFitnessPal, Zestar, PicHealthy, Munch-5-a-Day, CheckOffDiet, and the USDA Super Tracker are analyzed based on the user positioning they require and the internal structures that shape their use. This chapter closes by considering the impact of the genre on types of foods consumed and the clinical validity of journal records.

Chapter Four: Life Writing, Self-Care, and Rhetorical Modes of Production

After establishing that certain conditions (chapter two) give rise to the rhetorical form of the food journal (chapter three), chapter four investigates the circulating cultural narratives that serve as rhetorical modes of production in self-care practices and shape the meaningfulness of the electronic food journal as a genre. Considered alongside Foucault’s hypomnemata, the electronic food journal stands as an exemplar for the transition of self-care journaling to digital spaces and the hypertextual narrative that results.

Chapter Five: Extended Embodiment and Ruptured Feedback Loops

With the food journal established as a space for digital composition in response to cultural narratives about health, it becomes possible to interpret these artifacts and what they tell us about posthuman subjectivity and mind-body-technology interactivity. Here in chapter five I show how electronic food journals demonstrate mind-body-technology feedback loops and extended cognition. Through Shaun Gallagher’s distinction between body image and body schema, however, I argue that electronic food journals are characterized by a rupture in feedback loops and demonstrate a persistent inability to experience extended embodiment in digital environments.
Chapter Six: The PEERS Model: A Heuristic/Heuretic Toward an Embodiment Philosophy

Finally, chapter six presents a heuristic/heuretic (the PEERS model) to account for the aspects of embodiment left unaddressed in the public debate over health, the electronic food journal, and current embodiment philosophy. In imagining a philosophy centered on pre-noetic body processes and feminist approaches to knowledge construction, we can build a vibrant materiality that engages what is in the remainder toward a scalable model of embodied health philosophy.
CHAPTER TWO: NETWORKS OF SITUATIONAL HEALTH AND NUTRITIONISM

Food and eating are not theoretical, abstract concepts. Food is fundamental to existence and anchors us to our environments and to one another. Socially and culturally, we recognize food’s associations with family, special events, holidays, and memory. We are bombarded with food advertising online, on billboards, on television, and even on food packaging. Food has become less a necessary replenishment of energy or an enjoyable interface for shared experience than a hugely problematized space for the exercise of social and political control through self-surveillance and practices of public policing. This chapter draws attention to some of the forces shaping our relation to food, eating, and health. Together, these forces form a situation that gives rise to the food journal genre (detailed in chapter three). To begin, let us also consider the constructed nature of health, food, and self-care.

Medicalization and Public Health

To describe the social situation surrounding food, weight, and health is to describe, at least in part, the relation of medical science to the individual and the body. In the 1960’s, Michel Foucault analyzed the discourse shaping doctor-patient relationships and the social structures supporting and informing medical practice. Focusing on shifts in patient care during the late eighteenth century, Foucault defines the workings of the physician’s gaze and the move of the "clinic" into the population through medical education and home-based care. To Foucault’s work I add another turn—the dispersion of medicine itself into cultural interactions and between citizens through surveillance of one’s own body and the bodies of others. The dispersion of medical ethos affects the fat person/patient in ways that will be considered throughout the
chapter. This chapter sets up, then, an important turn in eighteenth-century medical practice that illuminates the living conditions of modern fatness.

In *The Birth of the Clinic*, Foucault outlines the emergence of clinical practice and its shift in the medicalization and treatment of populations in a series of moves progressing from the presentation of disease as a temporary interruption on an otherwise healthy and whole person toward a notion of disease as ever-present, ever-looming, and in need of constant monitoring. Doctor and patient engaged in “ever-greater proximity, bound together, the doctor by an ever-more attentive, more insistent, more penetrating gaze, the patient by all the silent, irreplaceable qualities that, in him, betray—that is, reveal and conceal—the clearly ordered forms of the disease” (Foucault, *Birth* Loc. 518-20). Because the gaze focused on disorder of the physical systems requiring a doctor’s specialized knowledge, “the capacity to talk sensibly about disease shifted from the patient to the doctor” (Patton, *Rebirth* Loc. 1513-14). Diseases, not wholly embodied patients, then became the object of study and of treatment. Privilege shifted to “the experience of the doctor, who is alone capable of perceiving and speaking the truth of disease. The change in question reflects a change in authority (from patient as authority on the subjective experience of illnes to doctor as authority on the objective experience of disease” (Patton, *Rebirth* Loc. 2235-39). The patient, carrier and harbinger of disease, was envisioned as secondary to the life cycle of disease itself.

One result of this shifting gaze, this binding-up of doctor and patient, is the broadening of what “disease” stands to mean. Modern medicine now focuses on long-term care, lifestyle medicine, and staving off illness. Historically, medicine acted when disease was acute, when life was threatened, and when care was a necessary condition of survival. Foucault names this as a luxury of modern civilization: “Before the advent of civilization, people had only the simplest,
most necessary diseases” (Foucault, Birth Loc. 535-36). In contrast, medicalization allows for “the unwarranted transformation of a broad range of bodily, psychic, and social experiences into problems of medicine or of medical definition” (Patton, Rebirth Loc. 99-101). We see this process enacted in the neoliberal economy where LATISSE® solves “eyelash hypotrichosis” (inadequate lashes) and over-nutrition is mobilized as the most pressing public health crisis (www.latisse.com). This aspect of the medical gaze problematizes previously benign spaces of health and “health seems to diminish by degrees” as spaces for health intervention flourish (Foucault, Birth Loc. 538-39).

As the focus of medicine grows to include previously benign aspects of the body and its functions, doctors become increasingly vigilant regarding the body’s signs and symptoms. Social and political structures organize to support this work. During the period that the clinic flourished, Foucault also traces the beginnings of epidemiology and the reporting techniques for characterizing and naming instances and outbreaks as epidemics. Provincial doctors operating in clinics began to catalog and report symptoms and diagnoses to a central authority for tracking. This had very clear benefits for managing epidemics: the ability to mobilize support to a specific area, the ability to name the malady and share information across locations, the ability to ascertain specific conditions that may support or discourage outbreaks. What results, though, is the looming prospect of the epidemic and the structures that watch carefully to monitor contagion. The epidemic, Foucault notes, is a “mathematical problem of the threshold” where “the sporadic disease is merely a submarginal epidemic” (Birth Loc. 677-78). One legacy of the shift toward the doctors’ watchful reporting practices is that any individual illness now holds the potential of the epidemic and the individual’s illness is always already conceived as a potential threat to the population-at-large.
In the framework of the epidemic, the individual is always already in relation to the collective, to the health of the larger population. And mobilizing the science of epidemiology meant that medicine traveled outside the confines of the doctor-patient relationship, but was now a policing social force to describe adequate living conditions, disposal and burial of corpses, foods to eat and avoid, and generally “how one should feed and dress oneself, how to avoid illness, and how to prevent or cure prevailing diseases” (Foucault, Birth Loc. 723-27). In viewing illness as potential epidemic, medicine left the bounds of illness to focus also on health and prevention.

Instead of medicine operating only through specialized training and a knowledgeable authority figure in the physician, the medical gaze moved toward an open space, a totality, in the monitoring and reporting of signs and symptoms. To enable this paradigm and to enact this vigilance, support was “not the perception of the patient in his singularity, but a collective consciousness, with all the information that intersects in it, growing in a complex, ever-proliferating way until it finally achieves the dimensions of a history, a geography, a state” (Foucault, Birth Loc. 797-801). This collective consciousness allows medical space to pervade social space and daily lived experience. The result is “a generalized presence of doctors whose intersecting gazes form a network and exercise at every point in space, and at every moment in time, a constant, mobile, differentiated supervision” (Foucault, Birth Loc. 829-31). We see this medicalization enacted by Dr. Thomas Farley, Commissioner of the New York City Department of Health and Mental Hygiene, when he describes his interest in obesity and his undifferentiated, amorphous patient population. In the Summer 2012 HBO documentary “The Weight of the Nation,” Dr. Farley notes, “I’ve been interested in obesity for a long time. But now I’m responsible for a city of 8.3 million people. Every one of those people I consider to be my patient
as a doctor” (“Part 1: Consequences”). Whether any individual wants to be perceived as Dr. Farley’s patient, whether one wants to come to him for care, Dr. Farley conceives of himself as everyone’s doctor, responsible for every person’s health. Epidemics, then, change the perception of medicine itself, the treatment of individual illness as contagion-potential, and the apparatus of the state for monitoring and correcting related living practices. We see this turn in the treatment of fat as disease (one of the modern conveniences of a generally healthy population), the concurrent treatment of obesity as an epidemic couched in the language of contagion, and the public health focus on healthy eating and behaviors, all of which is framed by these shifts Foucault names which will be discussed in greater detail later in the chapter.

Foucault’s history of the clinic and his attention to the medical gaze, the medicalization of the population, and the turn to health as a civic duty deeply inform the modern concern with fat, health, and the population. Foucault describes a time in which “each individual must be alerted; every citizen must be informed of what medical knowledge is necessary and possible” (Foucault, Birth Loc. 837-39). With a population educated in nutrition, disease prevention, and care, the “privileged relation between medicine and health involved the possibility of being one's own physician” (Foucault, Birth Loc. 912-14). Foucault notes this turn in the administration of vaccinations, where the family becomes responsible for both individual care and the social body, engendering a “‘private’ ethic of good health as the reciprocal duty of parents and children to the social, state, medical, policing bodies” (Foucault, Reader 281). What results is “the medicalized and medicalizing family” (Foucault, Reader 282). The family maintains a central role in his analysis as a unit capable of operating as a temporary clinic, resulting in what he calls a “medical staffing of the population” based on a civic duty for the larger public’s health (Foucault, Reader 285). We see this now in the duty of each person to work toward a “normal” body weight. The
BBC, for example, launched the “Where are you on the global fat scale?” website in July 2012 that calls on the individual to place her weight as an individual person, a member of her nation, and an inhabitant of earth under consideration. When I entered my body weight, I learned that “If everyone in the world had the same BMI as you, it would add 149,147,207 tonnes to the total weight of the world's population” (“BBC World Health”). I am also informed that while I have a BMI higher than 85% of the women in my country, I also have a BMI higher than 99% of the women aged 30-44 in the world (“BBC World Health”). None of this information is immediately relevant to my own health, but it serves as a warning of what the global consequences would become if everyone were like me. A fat me makes for a fatter world.

While Foucault speaks of training and educating families and staffing clinicians within communities, however, I posit that we now face a different type of staffing of the population. Rather than individually trained citizens mobilized for self- and family-care for the good of the larger population, we face now individually trained citizens, supported by the rhetoric of medical understandings of health, driven to action by social programs and public policy, and energized by fear of epidemics of contagion to police one another (not just oneself or one’s family) in order to increase compliance with medical health norms. In this economy of surveillance, anyone with the appearance of fitness, leanness, and health is turned into a guru, essentially endowed with medical knowledge concerning health and healthy behaviors, and is socially licensed to correct others through the pervasive medical message that conflates body size with health and conflates healthy body size with healthy behaviors. The thin person who enters her data on the “Where are you on the global fat scale?” website will see that her body weight amplified to global proportions would reduce the collective weight of the world. This isn’t framed on the website in terms of tonnes lost or weight lost, but as “tonnes removed” (“BBC News Health). This weight is
discursively constructed as something to imagine as entirely vanished, no longer a problem, the same way a piece of furniture can be removed (it was here, but now it isn’t) rather than energy that must be burned, transferred, or converted from one form of matter to another.

What initially mobilized the population for self-care has developed into a social hierarchy based upon adherence to medical priorities and interpretations of signs. Thin people, with the social capital endowed by medical constructions of health in relation to fatness, become cultural symbols of health, endowed with an ethos regarding health and nutrition unrelated to any sort of deep or serious knowledge of public health. In this economy

fatness leaves the domain of morality for the halls of the surgeon (liposuction or highly risky gastric bypass) to then be set free by fat liberationists, only to be returned to medicine by endocrinologists who cede some of the bodies (those whose disorder is will) to the morality plays of reality television. (Patton, Rebirth Loc. 104-05)

Add to this the public school, the church, and the news media, and we have a description of how concepts of fatness circulate within modern medicalized society. While in the eighteenth century the physician became “the great adviser and expert, if not in the art of governing, at least in that of observing, correcting, and improving the social ‘body’ and maintaining it in a permanent state of health,” that power is transferred today to factions of the population based upon body size (Foucault, Reader 284).

Like the clinical gaze that preceded it, this turn isn’t an entirely oppressive one. The ever-present gaze that monitors body weight and health can also be used in productive ways. The state, of course, attempts to produce efficient and agile citizens equipped for the civic good. The individual too, however, can also harness this power. While I will discuss electronic food journal
applications and their relation to this gaze, other forms of technology take explicit pleasure in it. While citizens may not enjoy the coercion to reduce body size, they are able to engage the public gaze in order to achieve it: take, for example, the Virtual Fridge Lock app which is “designed to shame dieters by posting reports of late-night refrigerator raids to friends via social networking sites” (“The weight-loss app”). This is enacted voluntarily by affixing a magnet to the refrigerator and installing a companion mobile phone application that is activated and posts alerts when a user opens the refrigerator after a certain time. Through Facebook’s mechanisms, readers are invited to comment on the person’s activity that announces “This person just raided the fridge” (“The weight-loss app”). This mechanism operates precisely within the frame of medicalization, calling on “friends” to activate what Meta Real calls “an eating reeducation program” (“The weight-loss app”). What is striking here is the notion that readers are qualified re-educators and that simply confessing these late-night visits to the fridge will open the door to specialized knowledge shared by others conditioned to teach users about healthy eating habits. While the app cannot determine whether the user consumed an entire bowl of cookie dough or a glass of water, it does call upon the user’s network of acquaintances to monitor and correct eating behaviors.

The Virtual Fridge Lock app is not forced upon users. It requires a conspicuous refrigerator magnet and access to social networking accounts. This is not an instantiation of some oppressive medical gaze, but the effort to capitalize on a society already conditioned to monitor, assess, comment upon, and condemn behaviors perceived as unhealthy or unproductive of good health. The moves Foucault defines in eighteenth century medicine equip the current social atmosphere where healthy weight and eating behavior are socially mobilized. It is within this framework that I will review some of the contemporary themes surrounding health and body
size. To begin, let us consider one of the most fundamental and essential elements of life and health: food.

**What is Food?**

Given the primacy of food as a sustaining force, it may seem unnecessary to define it. However, ways of thinking about food have changed dramatically in modern history, particularly when traced alongside the history of nutrition science and the discourse of quantification. Within this framework, “calories, proportions, minutes, servings, and groups” are used to describe what had been previously known simply as food (Mudry 2). This move allowed scientists to order, classify, and control food by breaking it down into constituent parts. Individual eaters also began to understand food in terms of nutritional components rather than holistic experiences of taste. In many ways, this schema “feeds certain human sensibilities only: rationality, reduction, and objectivity” rather than integration, sensation, or pleasure (Mudry 3).

The calorie, for example, measures a food product’s ability to provide energy to the body. The calorie, though, is used across a variety of media to measure the amount of heat required to raise a gram of water by one degree Celsius. Adopting this measurement allowed scientists to “compare and contrast amounts of heat given off by engines, supernovas, and people,” effectively reducing—or at least correlating—the human frame to a machine and couching its functions within the terms of industry (Mudry 5). The calorie and other measures of quantification not only frame food and eating within a mechanistic way of viewing the body and its processes, but this discourse also serves to silence certain other factors regarding food and eating. The qualitative experience of wellness and satiety, for example, has little merit within the discourse of quantification. This way of viewing food and eating sets up a system of values that allows some ways of eating to be healthy and good, while others are insufficient or bad. This is
the environment eaters navigate today, and through which medical and nutritional information is collected, communicated, and disseminated to the public. The discourse of quantification, then, is not simply one possible way of treating food, but the dominant discourse so pervasive that alternate ways of thinking about food are no longer possible outside of this framework.

This is not to suggest that the calorie or other measures of quantification are invented or fictional properties of food. Indeed, we know that food does contain caloric energy and nutrients in certain measure, but the prescriptive ways this discourse has been implemented by the United States Department of Agriculture (USDA) through Recommended Daily Allowances (RDAs) and food guides privileges these quantifiable facts over qualitative aspects like a food’s visual appeal, smell, seasonality, locality, or taste. In the use of the food guide pyramid and other tools, the USDA’s audience is the “cultural subject,” not samples of a real population but an audience invoked. Real eaters and their specificities and preferences related to eating are considered less important than that which science and quantification can catalogue about food. For eaters, compliance to recommendations “comes from abiding by nutritional numbers, eating enough, in moderation, more, or less, and by measuring themselves against numeric standards, the creation of which defines various cultural subjects” (Mudry14).

As cultural subjects, citizens hailed by the USDA are compared to externally generated numbers by technologies of governance, which includes everything from food scales to photo representations of a healthy meal. The good meal, far from what an embodied eater might expect, has nothing to do with taste or pleasure but will be described in terms of meeting a threshold for grams of fiber or limiting other elements like grams of sugar. These are not properties of food our bodies can readily identify, yet these are the very properties the discourse of quantification makes known and privileges. In this schema, direct experience is secondary to quantifiable fact
(Abram). When a user attempts to abide by these measures, the food journal becomes a technology of governance that allows us to translate food products into the discourse of quantification in ways that can be categorized, tallied, counted, and assessed according to the recommendations of the USDA.

As citizens, we follow these prescriptive eating practices because we adhere to the assumption that “the hidden chemical elements, and the quantities of those elements, of a food are its most important features” and that abiding by the recommendations will, in fact, lead to improved health (Mudry 16-17). Conversely, when ill health is reported, we now look to food as “a pathogen, a source of disease and ill health” (Lupton 77). Reducing food to its nutritional portfolio is the very reason for eating as described in popular media—not for pleasure or satisfaction, but for survival. In recent scientific accounts of the physiology of eating, the process is described thus: food is an energy source for macro and micronutrients and the oxidation of energy. A food’s energy value is measured as its caloric content minus the use of energy in the digestion and normal bodily function, or the Basal Metabolic Rate (BMR). In this configuration, eating is an equation, calories in versus calories out, a matter of scientific rationality rather than experiential pleasure.

When pleasure is no longer a consideration, the only task of the eater is to find the perfectly balanced human-food equation “based on the zero-waste model of the combustion engine. In order for maximum efficiency in the human body, the input of food must equal the output of work” (Mudry 22). When it comes to theorizing appetite (or the internally regulated appestat), ideas are “derived from engineering control theory which has provided models of regulatory systems capable of maintaining relatively stable states” wherein behavior (hunger, eating, and satiety) are controlled by “cycles of depletion and repletion” (Mela 5). This attitude
toward food remains the foundation for nutrition practice and medical dietary advice today. Quality (how good a food is) becomes subject to quantification (how much of a nutrient it has); the experience of food doesn’t matter in this configuration of food and of bodies.

The unstable realm of seasonality and quality and the individual realm of preference for taste, texture, and food combinations are difficult to track and scale on a public policy level. Instead, nutrition science focuses on the intrinsic nutritional characteristics of foods. The problem, however, is that science proves repeatedly that our understanding of calories and nutrients is limited. Almonds, for example, appear on many “good snack” lists as food high in nutrients and capable of staving off hunger. Nuts are notoriously high in fat (good, healthy, unsaturated fat) and calories, though, and have to be consumed in controlled portions. An August 2012 study shows, however, that the traditional Atwater values assigning a USDA serving (1 ounce or about 23 almonds) a value of 165 calories are inaccurate. Researchers have discovered that something in the fiber structure of almonds means all of those calories are not absorbed and that the net caloric value of a 23-almond serving comes in around 130 calories (Novotny, Gebauer, and Baer). This has implications not only for almonds themselves, but for other food products containing almonds and for the general reliability of Atwater calorie estimates. And because this caloric difference is based upon the absorption of fat within the gut, it stands to reason that there may be differences between individuals—or even within one individual—based upon food combinations, individual bacterial profiles or between almonds grown in different regions, at different times of year, or at differing levels of freshness. The calorie as a stable, consistent, reliable measure of food energy simply cannot account for the many factors that inform food energy uptake.
Despite studies revealing the variability of caloric content in food and the continued findings that there is no significant difference between the amounts of food consumed by large versus lean people, the discourse of quantification perpetuates the notion that larger body size is a result of overconsumption of food or inactivity (Bacon 68). During a time when types of malnutrition and general food scarcity defined the populace, scientists understood caloric information as a matter of home economics, encouraging families to spend limited money on higher-calorie yield foods. Thus, using nutritional formulas could save both the health and the wealth of Americans during a time when scarcity defined both. This discourse of quantification, rationality, and morality remains though we are no longer in a period of scarcity. The way of thinking about food and health is based on a model of food availability that no longer defines the current situation.

Through the publication of food guides, the public became accustomed to eating in a prescribed way that addressed some particular social issue (fiscal scarcity, times of plenty, and then later weight management). Across the various guides, “Learning to eat according to scientific principles, and understanding food through a series of numbers, would facilitate the eater's achieving whatever social goal the food guide purported to have” (Mudry 50). These guides moved from selecting foods based on what the body needs, to selecting foods based on budgetary constraints and later to avoidance of vitamin and mineral deficiencies based on age and sex. For Mudry, “The RDAs represent the moment in which the person, in the process of eating, falls away, and the judgment of the goodness of a meal and the goodness of an American becomes a measurement” (Mudry 64). In any of the various food guides, users were asked to adhere to “the letter and spirit of enumerated food by counting food groups, vitamins, nutrients, or pennies committed the household to solving a pressing problem of the era” (Mudry 75).
By 1956, the move toward adequacy took a turn toward avoiding *over*-indulgence. By 1977, Americans were eating more calories than they needed (according to scientists) and the language of the food guides changed. The 1977 *Dietary Goals* report included seven dietary goals. Of the seven, four “began with the word ‘reduce,’ one began with ‘avoid,’ and one with the words ‘limit the intake’” (Mudry 82). For professionals (scientists and nutritionists), the only times preferences and cultural norms mattered were when they presented barriers to optimal prescribed eating. By this point, even the nutritional portfolio of food lost value to the regime of limiting caloric intake. During this era, foods relatively low in calories were recommended over those higher in caloric and nutritional density.

In alignment with the shift toward limiting food intake, the Nutrition Labeling and Education Act (NLEA) required foods packaged after May 8, 1994, to be printed with nutrition facts. The nutritional portfolio of food became omnipresent even though scientists know that “30 to 40 percent of your total physical response to a meal occurs during the ‘cephalic phase of digestion,’ which is…the time you spend seeing, smelling, and tasting your meal” (Bacon 189-90). That cephalic phase is rendered subject to another kind of cephalic phase, which relies on rational thinking and interpellation within the discourse of quantification. Particularly when weight management enters into the equation, cues of hunger and satiety are ignored in favor of eating by caloric value and numerical configuration.

Because of the conflicting messages surrounding food (all of which are positioned within or in response to the discourse of quantification), there is a cultural desire for food and appetites that are self-governing, self-regulating, and that fulfill the requirements of the discourse of quantification. Deborah Lupton outlines this desire by describing how “vitamin gels and ‘smart pills’ have become the alternative to organic food, taking the non-natural to its apotheosis. The
fantasy of cyberspace and virtual reality is to leave behind the organic body… nourishing only
the mind/computer with space-food-like capsules” (Lupton 92). The fleshy body itself—both of
the eater and of the food’s own embodiment—is repudiated in favor of a disembodied capsule-
like food product that answers the call of the discourse of quantification.

Mudry points out that this system of numbers that point to other numbers—nutrition
pointing to finance and back again—creates a self-referential system that continues to drive
attention away from taste and experience toward quantification. This self-referential system is a
nutritional simulacra in the Baudrillardian sense, creating a reality that comes to replace the real.
Lupton’s non-food is presented not only in science fiction accounts of food and eating, but also
in daily lived experience as food substitutes (such as protein supplements or meal replacement
drinks). These products are culturally positioned as “virtuous and ascetic... not only because of
its lack of palatability but also because it is viewed as being good for brain functioning (the
‘software’ of the body that is closest conceptually to a computer). In its elevation of function
over pleasure, ‘non-food’ therefore suggests the ability to transcend the body’s needs for sensual
gratification, privileging mind over matter” (Lupton 92). The Cartesian dualist approach to the
body—and to food—produces the discourse of quantification as superior to the embodied reality
of eater and of food.

One outstanding difficulty with the discourse of quantification and the zero-sum model of
caloric balance is the reality that we do not yet fully understand the ways the body functions in
digesting, processing, and utilizing food or in desiring and achieving satiety through the eating
process. The simple fact of the basal metabolic rate, for example, is complicated by the fact that
a calorie deficit (required for weight loss) leads directly to a dip in the basal metabolic rate
“shortly after the onset of a significant negative energy balance, disproportionately to and
preceding any meaningful weight loss, which may be blunted by this physiological response” (Mela 44). A person would have to eat successively less food in order to maintain a negative energy balance in order to achieve weight loss over extended periods of time. As an obese person works to lose weight through food restriction, they may drive “their weight to below set-point and in turn causing an elevation of hunger” (Mela 5). The physiological drive to eat and the affectivity of the hunger and satiety spectrum are not figured within the discourse of quantification and are not fully understood.

Fat and Health

We are, on average, larger than our ancestors. This increase in size has resulted in what public health officials—in the legacy of Foucault’s work on the clinic—have labeled an epidemic. That choice of language, of course, “maintains a powerful metaphorical connection to contagion” and we begin to conceive of fat as a spreading virus, ready to infect any population, household, or person (Gilman 19). The idea of “infectobesity” is reinforced by graphics on television news programs that show obesity “spreading” across the country from the coasts toward the mid-section of the country. When we think of obesity (or increased body fat) as an epidemic, it becomes, as Foucault has traced, a national rather than an individual problem. What we know, however, is that fat is historically “in the eye of the beholder. Each age, culture, and tradition has defined acceptable weight for itself, and yet all have a point beyond which excess weight is unacceptable, unhealthy, ugly, or corrupting” (Gilman 3). This point is clearly labeled for modern citizens as the point of medical obesity.

Being over-fat or obese, however, is constructed as a numeric problem created through numeric discourse. It relies not on individual measures of health, but on statistics and probabilities for potential future ill health (which may or may not pertain to any individual
person) related to body height and weight. The notion of obesity implicitly relies on that made knowable through measurement. Rather than pointing to a failed organ, system, or process within the body, obesity functions as “a phenomenological category, which reflects the visible manifestation of bodily size” (Gilman 18).

While fat cells themselves may be unimpressive and benign, managing overall body size and proportion is an ongoing project. A restricted diet has been constructed historically as an instrument for development of inner self (Christian tradition) and/or the public self (Greek *askesis*), and the language of the obesity epidemic rely on both constructions to frame the fear of fat for both individuals and society. It results in development of diets, pharmacologic interventions, and surgery to combat this increased body weight.

The current “war on obesity has taken its toll. Extensive ‘collateral damage’ has resulted: Food and body preoccupation, self-hatred, eating disorders, discrimination, poor health… Few of us are at peace with our bodies, whether because we’re fat or because we fear becoming fat” (Bacon 251). The policing of body size works by making everyone vigilant about fat, whether or not they are medically obese. Instead, “in a fat-hating society everyone is fat. Fat functions as a floating signifier, attaching to individuals based on a power relationship, not a physical measurement” (Solovay and Wann xv). Even when a person (and especially a woman) is not fat, she is vigilant about fat. As a result of obesity epidemic discourse, people enter into some relation with fatness, even when they are not fat or overweight.

**Etiology**

While the impact of fat on the well-being of any individual remains uncertain even during the height of this obesity epidemic, researchers have worked to identify the causes of increased body fat. Of course, in engaging in “cause-seeking rhetoric, we presume that some intervention
into the 'problem' is necessary” (Lebesco 85). If the cause for obesity can be identified, the thinking goes, so too can a cure.

In nearly every account of the etiology of obesity, fatness is considered the result of some broken, damaged, or otherwise disturbed physical or psychological system. In these cases, whether causes are traced along a biological path “or along a social path to traumatic childhood experience, proponents of essentialist positions argue that fat identity is the unfortunately inevitable outcome of a causal relationship with some original variable gone awry” (Lebesco 14). That variable might have to do with “genes, hormones, fear of being sexually attractive, and dozens of other causes for fatness... each one advanced with the understanding that finding a remedy would be a financially rewarding proposition” (Lebesco 85). In any case, fatness supposedly evidences deviation from health, stability, and normality.

This understanding of obesity resulting from some originary disruption to physical, psychological, or social eating practices is evidenced in practitioner’s assumptions about the causes for their client’s body size. Nutritionist Karin Kratina, in her dissertation project from the University of Florida, begins to notice a “parallel process” in her overweight clients: some problem in their personal life coincides with a problem in their eating habits (15). For trained nutritionists, “The commonly accepted reasons for obesity are: (a) emotional, when compulsive eating becomes a compensation for emotional and psychological problems; (b) regulatory, when the brain’s appetite control center is not functioning properly; and (c) cultural, when parents, family and friends overeat and inappropriate feeding habits are learned” (Mancusi 7-8). In each of these cases, increased body weight equates with some broken or maladaptive physiological system.
Because weight is attributed to one or all of these factors, succeeding in weight loss and weight control means somehow correcting all of the problems and behaviors that allowed for weight gain (Mancusi 20). Culturally speaking, this requires a systems approach where “forces governing appetite control... are in a constantly dynamic state and encompass biological, psychological and environmental events” (Mela 2). Part of this dynamic state includes fat cells themselves, which “are not just dumb sacks of lard. They are active organs and send chemical messages that help to regulate many body functions” (Bacon 26). For practitioners, this interplay between body and environment means looking inward, understanding the physical pull of hunger on the drive to eat (and “over”eat). Here, the distinction between hunger and appetite is important for professionals: it has been suggested that the obese are less able to perceive internal feeding cues (hunger) and rather respond more readily to external cues (appetite) (Mancusi). Hormones that signal hunger (ghrelin) and fullness (leptin) have a noticeable impact on the drive to eat; the balance of these hormones varies across individuals and within individual bodies over time. In some literature, the hunger/appetite distinction marks the difference between restrained (dieting) and unrestrained eaters. If you restrain your eating to the point of ignoring hunger, you will binge. Practitioners of the Health at Every Size Approach advocate the view that if you eat unrestrained, you’ll eat what you want and need and lose interest when you’re done. “Done,” however, seems to vary naturally across the population.

For some practitioners, the emphasis falls less on an integrationist approach and more on singling out a root cause for increased hunger/appetite. One theory is that “subjects who are predisposed to obesity all show heightened hedonic responses to fat-containing stimuli” including children of fatter parents, people who want to restrict fat intake for weight control, non-obese subjects at higher ends of normal body weight, and those already or previously obese
The idea that food high in fat is overwhelmingly pleasurable is also linked to high-sugar foods: “The more sugar and fat you consume, the more opioids released. Because the reaction is so pleasurable, you consume more of these foods to continue to receive the pleasurable reaction, creating a powerful, neurochemical drive to overeat those foods” (Bacon 104). Thus the lesson is that pleasurable foods cause overconsumption. Eaters have the option of either carefully limiting these pleasurable foods or eliminating them altogether (also known as abstinence from certain foods in the language of Overeater’s Anonymous).

In addition to certain food types, eating patterns are said to contribute to obesity. Popular dietary knowledge teaches that breakfast is the most important meal of the day and that nighttime snacking should be avoided. Eating misaligned with the circadian rhythm is reported to increase body weight, as “obese individuals consume a smaller proportion of reported energy intakes in the form of breakfast, and a higher proportion during the evening, compared with lean subjects” (Mela 127). It is recommended instead that we have a hearty breakfast and then smaller meals throughout the day. Smaller, regular meals are associated with better “glucose tolerance test responses, lower insulin concentrations, and improved lipid profiles, compared with less frequent eating” (Mela 126).

Eating patterns are, it turns out, strongly genetic and associations between eating patterns and body size are largely dependent on genetic factors (O’Hara). The fat mass and obesity (FTO) gene on chromosome 16 has been associated with fatness, but was recently linked to “impaired satiety responsiveness, suggesting that FTO’s correlation with increased body mass index partially involves effects on appetite” (Wardle et al. 3641). That satiety response is “impaired,” of course, refers only to the difference between satiety between non-FTO and FTO-carrying children in the study. And even after controlling for body weight, genetic obesity risk alleles are
associated with the number of eating episodes per day as well as consumption of dairy and protein (McCaffery et al.). The risk alleles studied in this research include FTO and also MC4R, SH2B1, BDNF, INSIG2, TNNI3K, NISCH-STAB1, MTIF3, MAP2K5, QPCTL/GIPR, and PPARG (McCaffery et al.). Genetic research on a population of 249,796 confirmed “14 known obesity susceptibility loci and identified 18 new loci associated with body mass index” (Speliotes et al). And the genes associated with obesity function differently; some impact waist circumference while others impact BMI and only 60% overlap affecting both (O’Hara). The list of known alleles associated with obesity demonstrates the complexity of an individual’s own drive to eat and experience of satiety, and the biological constraints for regulating those intensities.

Outside of behaviors linked strongly with genetics, other physiological factors are at work in body weight. Lily O’Hara, a public health policy researcher, outlines additional factors contributing to obesity including:

- physiological factors related to the gut, such as deficiency in Toll-like receptor 5, an immune system protein present in the gut, metabolic endotoxemia caused by bacterial lipopolysaccharide from Gram-negative intestinal microbiota, which leads to low grade chronic inflammation, the composition of microbiota in the gut, and infection with helicobacter pylori. Other types of infection have also been identified as contributing to increased body weight, including chlamydia pneumonia and human adenovirus 36. (O’Hara)

These factors are not under conscious control of any individual. Combined with genetic risk factors for obesity, exposure to these pathogens, bacteria, and viral infections might “activate”
obesity genes. As with alleles, the way these organisms affect body weight is not well understood, and is in constant interplay with other factors.

Lifestyle factors like sleep patterns and stress also impact body weight. Even in short term trials, loss of regular sleep “leads to impaired glucose metabolism, dysregulation of appetite, and increased blood pressure” (O’Hara). Likewise, excessive sleep can be associated with some forms of metabolic disease. Stress hormones like cortisol have a direct link to fat storage, and chronic stress can lead to long-term weight gain. In a 19-year study of more than 10,000 individuals, researchers conclude “chronic work stress predicts general and central obesity” (Brunner, Chandola, and Marmot 828).

There are many theories as to the cause of increased body fat among today’s population, yet none have adequately provided a solution for reducing body fat or even whether it is truly desirable or necessary to reduce body fat to levels considered historically normal. We do know that the energy balance equation alone is insufficient to account for the drive to eat or the ways food interacts with hormonal systems within an individual’s body. Perhaps what the statistics on obesity demonstrate most convincingly is the “erosion of qualitative conceptions of health” (Mudry 176). Given these factors, “one must accept etiological ambiguity and resist the temptation to affix a cause, even an apparently forgiving one, to the health condition of fatness—in other words, stop asking 'why?’ about fat identity, and start acting out about it” (Lebesco 120).

**Stakeholders**

There are many stakeholders with roles in the growing public health concern over fat. While my project is not a Marxist one or an account of the capital flows of the modern food industry, it is worth briefly acknowledging that the obesity crisis is not as simple as individuals making “food choices” among neutral food products. It is not as simple as public health officials
recommending reduced body fat as a matter of health. The following list names just a few of the stakeholders in the production, maintenance, loss, treatment, and discussion of fat:

- Diet and weight loss companies selling diet tools and foods
- Food manufactures differentiating new food product lines focused on calorie reduction or health
- Bariatric surgeons, programs, centers, and hospitals
- Clothing retailers (those who refuse to sell larger sizes and those who exist based upon the differentiation of larger sizes)
- Fashion magazines and advertisers
- Cosmetic surgeons
- Health and life insurance providers
- Pharmaceutical companies
- Parents, teachers, children, and school systems

To list these stakeholders is to say very little about their roles in the discussion and treatment of fat, but simply to outline just a few of the industries and constituents with financial and social capital invested in the cultural attention paid to obesity and body weight. In many cases, “if you believe that fat people could (and should), lose weight... you are part of the $58.6 billion-per-year weight-loss industry or its vast customer base” (Solovay and Wann ix). Similarly, if fat is a disease, or shortens life or quality of life, “your approach is aligned with ‘obesity’ researchers, bariatric surgeons, public health officials who declare ‘war on obesity’” (Solovay and Wann ix). These constituents have a stake in the debate surrounding obesity, in the recommendations made, and in the way individuals attempt to control their body weight.

Consumers have to recognize that the injunction to “‘eat less’ must be combined with ‘consume more’ in some other sphere, including dieting products” (Solovay and Wann 193). While funding to research the harmful effects of obesity flows generously, “few researchers investigate the possible deleterious side effects of... synthetically produced, aggressively marketed food substitutes (or perhaps we should call them ‘fat body’ substitutes)” (Braziel 7). The introduction and consumption of highly processed foods aligns with the population’s
increasing body weight, yet “the government… paradoxically encourages the consumption of processed foods (which are of lower nutritional value than whole foods) through farm subsidies and other economic policies” (Bacon 98). When we think about all of the factors contributing to food choices and the availability of food products, we have to look at the entire food landscape. Looking at the foodscape is important “because it provides an alternative to rhetorics of personal responsibility and genetic determinism and because it ostensibly draws attention to broader political, economic, and cultural forces in understanding the constitution of contemporary bodies” (Solovay and Wann 187).

United States initiatives are invested in the foodscape concept, focusing on "food deserts" or places where fresh, wholesome food is hard to find or too expensive. Particularly in poor inner city populations, Michelle Obama has focused on rerouting resources to make fresh fruits and vegetables affordable. French research, however, has found that people are unlikely to shop in their neighborhood markets (only 11.4% of 7,131 study participants). What binds shoppers is not geographic proximity, but Body Mass Index and Waist Circumference: "people shopping in the same supermarket had a more comparable BMI and WC than participants shopping in different supermarkets" (Chaix et al). If the same holds true in the United States, we might expect future interventions focused not on geographic neighborhoods, but on behavioral interventions in "fat" supermarkets with higher-BMI patrons.

**Lipoliteracy**

With health defined largely by Body Mass Index (BMI), individuals and populations are diagnosed as either underweight, normal, overweight, or obese (and some BMI charts further differentiate between types of obesity, such as “morbid” and “super morbid obesity”). BMI is used in doctor’s offices, by insurance companies, and is taught in elementary schools so that
children learn their categorical placement. The Body Mass Index “hails” the population by drawing even the non-fat into a relation with fatness. Once created, these BMI tables classify and discursively construct body sizes into labeled groups.

Because the entire population is interpellated through the Body Mass Index, the population is required to become “lipoliterates” where we are all in some relation to fat and adept at reading the body (our own and others) for fatness and meanings associated with fatness. Because the term “obesity” is a numerical categorization, it “not only evokes a mode of scientific empiricism that offers measurements, weights and sizes that position subjects on either side of the healthy/pathological binary, but its now common usage has embedded ‘fat’ flesh in popular understandings as always already a virtual confession of pathology” (Murray 3). In the same way that children develop literacy in reading and writing through early learning, they also develop an understanding of this lipoliteracy.

Children’s knowledge of “fat” and cultural understandings of “health” have resulted in early-onset dieting. A 1986 study indicated that half of all 9 year-old girls and 80 percent of all ten year olds girls were dieting, and this was long before White House initiatives to end childhood obesity (Scripps Howard News Service 37). Others studies have shown that girls as young as three years old exhibit awareness of the thin ideal but also “believe in and perpetuate negative stereotypes about people who do not fall into the ideal spectrum of body size” (Fisher). Young girls are not, however, an isolated population obsessed with leanness. Their aversion to fat is indicative of the larger cultural preoccupation with body size rather than some age- or gender- anomaly. The interpellated fat person, at any age, is literate about her own status as fat and is constructed as pathologically diseased by obesity’s association with illness and bad health when the classifications actually produce the concept of obesity rather than describe it.
What the Body Mass Index effectively accomplishes is a model of normality rather than a response to some pathological abnormality. Thus, the normal BMI becomes a model for health and a standard way to assess health, even when the BMI has only general correlations to health and cannot account for individual differences in lifestyle or physiology. Because of the BMI, “a fatty who exercises, eats her veggies, meditates, and never diets might not be in a high-risk category at all, but we’ll never freakin’ know, because everything is skewed so far in favor of blaming adiposity itself” (Harding and Kirby 175). When researchers, for example:

looked at a nationally representative group of more than 170,000 U.S. adults, they found the difference between actual weight and perceived ideal weight was a better indicator of mental and physical health than BMI. In other words, feeling fat has stronger health effects than being fat. (Bacon 126)

So while a person might be healthy by all other measures, a BMI in a high-risk category stands as a cause for any future health problems that develop, even when there is no certainty than BMI-associated health problems will develop. What is certain, however, is the negative health effect of labeling people as potentially unhealthy without any indication of physiological illness.

And due to the medical model, we all feel fat. If we are not now fat, we fear becoming fat. Our lipoliteracies inform us as to our relation to fat, and we are in continual state of fat surveillance which requires monitoring of ourselves and compliance with advice from nutritional experts. Because this professional gaze is ever-present (even when physically absent), “women must continually produce bodies that are acceptable to that gaze. Thus a woman’s own gaze becomes a substitute for a man’s gaze, and she evaluates her own body as ruthlessly as she expects it to be evaluated by him” (Braziel 62). Part of our lipoliteracy includes the ruthless self-monitoring of fatness. The BMI thus creates “temporal and spatial decomposition” of bodies
into a sphere of numerical data in need of regulatory practices and controlled surveillance (Cartwright xvi).

Self-surveillance also bleeds into surveillance of others. When I can control my body fat, I may begin to feel superior to those who cannot (or do not). When I can control my body fat, I may assume that if all people performed my same actions, they might all achieve the same results. The process of quantification through the BMI “describes microhierarchization” wherein people feel:

superiority or self-loathing based on each calorie or gram of food consumed or not consumed, in each belt notch, pound, or inch gained or lost, in each clothing size smaller or larger. Each micro-rung on the weight-based hierarchy exerts pressure to covet the next increment thinner and regret the next increment fatter, leaving little room for people to recognize and revolt against the overall system that alienates us from our own bodies. (Solovay and Wann xv)

This microhierachization exists among fat individuals, and at the other end of the weight spectrum includes those with disordered eating patterns that include anorexia nervosa, bulimia nervosa, or—the newest DSM IV diagnosis—eating disorders not otherwise specified (EDNOS).

Pro-ana groups, engaging in some of the same logic as size acceptance groups, argue that some people are simply naturally thin and ought to be left to their thinness without harassment from the medical community. Sites like http://www.pro-ana-nation.com/ and http://www.prettythin.com/ provide “thinspiration” and support for those pursuing bodies thinner than the medical model of health allows. While fatness and thinness are entirely different experiences culturally, the existence of pro-ana communities reflects the complicated relationships we have as a society with our bodies, our eating practices, and medically defined
health. Through the BMI—on both ends of the spectrum—we are interpellated into a relationship with ourselves and with each other that circulates around the discourse of fatness. The cultural pushback, then, may be to push back with a holistic, experiential description of health and wellness rather than that which is driven by numeric data; such a model will be presented in chapter six. Such an allowance would free women of all sizes to practice health rather than rigid body surveillance.

**Performing Health through Body Work**

The culture of quantification and the conflation of body size with health motivates individuals of all body sizes to perform health through body work. Body work includes diets, exercise regimens, cosmetic surgeries, and bariatric procedures that are often positioned as an individual choice, particularly when viewed through the lens of women’s sociocultural roles. Making the most of one’s appearance can be construed as either shallow or as a smart, effective, and *necessary* way to improve one’s earning potential and independence. While critics “shoot barbs at those brave, adventurous, committed, resigned, or rich enough to undertake surgical improvement” (Haiken 162), Gimlin suggests that a more appropriate image may position these women as “savvy cultural negotiators, attempting to make out as best they can within a culture that limits their options” (106). Whether women undertaking these forms of body work do so as subjects of a system of oppression or as savvy cultural negotiators, we know that in the culture of Foucauldian disciplinary medicine, the notion of personal choice is an illusion. Women are *compelled* to answer the social norms of beauty and thinness and are interpellated in relation to those norms even when choosing not to embrace them.

Cressida Heyes elaborates on this issue within the ranks of academic feminists. She writes: “I know many intelligent feminists who actively resist gaining weight, even though they
would agree with the proposition that fat people should not be discriminated against, whose ideal world would not include any particular normatively upheld body type, and who even actively write and work against the ‘tyranny of slenderness’” (Heyes 59). Why then, do these women focus on body work as a supposedly individual choice while working against it as a social construct? They are bound within a culture where women’s bodies are public property, subject to the disciplinary gaze of cultural norms. In this system, “we struggle for rights over our own bodies” although “the very bodies for which we struggle are not quite ever only our own... constituted as a social phenomenon in the public sphere, my body is and is not mine” (Heyes 1).

Celebrity culture and weight are closely tied when it comes to these public body projects. Celebrities who have undergone weight loss procedures—Star Jones, Al Roker, Sharon Osborne, Anne Rice, Roseanne Barr, Carnie Wilson—have been held to public account both for their choices and the ways they present those choices publicly. Celebrities who gain weight publicly “are openly censured and scorned as if their bodies were public property. And when they lose weight... they are met with an approval that again marks their bodies as public property” (Braziel 65). All bodies are public bodies, but a body that does not properly demonstrate appropriate size and shape is subject to intense pubic scrutiny. The notion of individual choice must take into account these pressing social dimensions.

In this social realm, those undertaking body modification projects have a profound impact on all women. Haraway’s notion of the modest witness recognizes the implicatedness that comes with working within a social order that subjugates others. In body projects like cosmetic and bariatric surgery, this is played out in “how those who are indirectly linked to the phenomenon are repositioned in culture through it” (Fraser 30). Under the model of the rhizome, the effects of these procedures are not limited to the supposed-individuals who “freely choose”
them. The effects of these decisions spread through culture. Fraser, who spent countless hours interviewing plastic surgeons and women who had undergone cosmetic procedures, admits “I now experience curiosity on meeting people who might be considered ‘prime candidates’ for surgery. I find myself wondering why they have chosen not to undergo the particular procedure designed for their specific characteristic” (31). In her exposure to the world of cosmetic intervention, she views others through the surgeon’s lens and begins to question why some women choose not to undergo the procedures that signal the cultural push toward body work.

In her analysis of makeover culture, Jones predicts the same phenomenon. She writes, “The decision not to have cosmetic surgery may soon require its own fortitude and knowledge about why cosmetic surgery exists and how it operates in and through makeover culture” (Jones 189). This is especially true in the area of medical weight loss interventions, where fat studies scholars have to constantly reiterate the risks and dangers associated with bariatric procedures (not to mention the cost, as procedures are not covered under all insurance plans) in order to explain why they have chosen not to engage the surgical route.

The focus on this body work, this intense scrutiny of the body’s performance of health and appropriate femininity, is paradoxically a “postbody culture inasmuch as the material body seems to lose all its pathetic vulnerability in the face of a host of medical/technological advances meant to keep you perfect” (Blum 49). This body work culture¹ might be better described as

¹ The body’s materiality is disguised within a regime designed to hide all parts and processes of the body considered to be outside of the normative notions of beauty and health. These body work processes and procedures constitute “a technology that was first aimed at the replacement of malfunctioning parts has generated an industry and an ideology fueled by fantasies of rearranging, transforming, and correcting, an ideology of limitless improvement and change, defying the historicity, the mortality, and, indeed, the very materiality of the body” (Bordo 245). In place of that physical materiality, we find Bordo’s concept of cultural plastic—
“makeover culture.” In makeover culture, the emphasis is on continued effort to become something better, to engage in continual self-improvement. Actants in the network are expected to engage in ongoing displays of labor toward self-improvement, and to maintain a constant “state where becoming is more desirable than being” (Jones 12). In postmodernity, we choose from among many selves (Turkle) and in makeover culture these multiplicities are amplified; it is not whom we choose to become that is ultimately important, but the ongoing display of self-improvement. The traditional notion of a one-time makeover with a before and after is replaced in this schema where “‘after’ is the new ‘before,’ simply heralding the next portion of labour” (Jones 55). There is a ceaseless, stretched mode of being tied to becoming, one that never ends in a fully transformed self. This notion of becoming relies on an existence that is not static but always in flux. Any momentary identity is neither positive nor negative, but simply a choice among many possibilities—-a temporary assemblage. This operates on the rhizome model and the individual person is herself a population of possibilities, a multiple configuration always up for renegotiation and reconfiguration (Fraser).

The body work of makeover culture is tied to specific locations—-hair salons, aerobics classes, plastic surgeon’s offices, and fat acceptance organizations—-that “provide women with the ‘socially approved vocabularies’ that explain their failure to accomplish ideal beauty and thus serve to neutralize the flawed identity that a perfect body implies in Western society” (Gimlin 15). If a woman had large thighs, for example, but attended aerobics class daily, women described themselves as strong and active despite their deviation from their desired body type.

the body as transfigurable, ever-changing, open to continuous revision under the regime of body work.
Even within these spaces, the language of *effort* was more important than a final, finished product. Demonstrating the labor of body work was more important than achieving any ideal figure.

*Feigned Lack of Concern*

As women are enrolled in the networks of body work and perform the labor associated with makeover practices, the odd and strangely contradictory goal is to maintain a distant relationship with the body, wherein one works continually on the self without appearing obsessed with doing so. We strive to be that woman who “has achieved what we might call a ‘cool’ (that is casual) relation to food… Eating has become, for her, no big deal” (Bordo 100). This woman “has achieved a state beyond craving. Undominated by unsatisfied internal need, she eats not only freely but without deep desire and without apparent consequences” which results in a freedom from “bodily determinism” (Bordo 102; 245). Weight loss surgery is an example of this practice, where healthy and normal tissues are resected, rerouted, and reconfigured in unnatural ways in order to simulate a healthy and “normal” appearance. In effect, reworked small intestines absorb fewer vitamins and minerals (requiring lifelong supplementation), yet literally removing the body’s natural ability to maintain nutritional health is rendered subject to the competing desire to achieve an outward *appearance* of health and thinness. After massive weight loss, surgical patients are then advised to undergo plastic surgeries in order to remove redundant skin, once again attempting to restore a “normal” appearance and ultimately to pass as someone *not* affected by massive weight gain and weight loss—in effect, to perform that “cool” relationship to the body and the self.

Susan Fraser calls this relationship the nature imperative, which “demands a seamless public appearance that not only erases indications of diet, age, child-bearing or class status, but
most importantly, which minimizes the evidence that these factors have been erased at all” (129). The goal is to perform body work labor continuously according to the demands of makeover culture (Jones), but also to perform a simulation of neutrality that hides the fact that effort was ever required.

**Permanent Body Size Modification**

As we have seen, medicalization of fatness essentializes fat as the result of some original (yet unidentified) variable gone awry, yet “not all essentialist positions are anti-fat; some prefer to focus on the present fact of fatness and the impossibility of changing it, using this resignation as a platform for civil rights size-acceptance movements” (Braziel 84). For this group, weight is seen as a human characteristic that varies across the population on a bell curve similarly to height. Thus the BMI’s “underweight,” “overweight,” and “obese” categories would be variants of normality rather than abnormalities. Despite lipoliteracies and self-surveillance, permanent body weight modification is rare and body size seems to be determined more by genetics than any other factor. According to the 2008 *American Journal of Clinical Nutrition*, 77% of body size is genetic, leaving only 23% of body size under the control of conscious will, the foodscape, and other environmental factors (Gilman). Fat activists have come to agree that while “a balanced, nutritious diet and exercising are good for you,” it is “stone cold bullshit that those things will make you permanently thin if your body is not so inclined” (Harding and Kirby 10).

The National Association to Advance Fat Acceptance (NAAFA) includes among its membership many women who “have experienced short periods of being at average weight. Most achieved the weight loss through drastic measures like liquid diets, fasting, diet pills, or gastric bypass surgery, and all gained at least as much weight back as they had lost” (Gimlin 137). According to the National Institutes of Health, “Success rates for long-term weight loss are
not good: of those who intentionally lose weight, most will regain about one-third of their weight within the first year, and virtually all will return to their baseline weight within five years” (Solovay and Wann 38). It is well-established that any previously “obese individuals who have lost weight are known to be at high risk of subsequent weight regain and re-establishment of obesity” (Mela 48). With those odds, it is difficult to reconcile the injunction to lose weight and achieve a normal BMI with the reality that such permanent body size modification is statistically impossible.

Yet the population continues to diet, knowing that “Short-term weight loss is associated with reductions in risk factors for cardiovascular disease, including improvements in blood pressure, glycemic control, and lipid and lipoprotein profiles” during the period of reduced weight (Kratina 50). With each diet, however, the likelihood of weight regain increases. The process of weight cycling has been shown “to decrease metabolic rates at rest and during exercise, increase lipoprotein lipase activity (making the body more efficient at storing fat), and increase the proportion of fat to lean tissue in the body. With each weight loss/regain cycle, weight is increasingly redistributed from lower body subcutaneous fat, shown to have a protective effect against heart disease, diabetes, cancer, and high cholesterol, to abdominal visceral fat, which does not confer these positive effects” (Kratina 54). With each weight loss and regain cycle, the body becomes markedly less healthy. In addition, we know that the dieting process “results in personality changes that include increases in apathy and depression, and decrease in mental alertness, comprehension, and concentration” (Kratina 220). These feelings often continue once the diet has ended for a period at least as long as the diet itself lasted.

And diets, despite claims, are not always effective in reducing weight at all. In 2004, the creator of the South Beach Diet Arthur Agatson organized the Osceola County HOPS (Healthier
Options for Public School Children) program which implemented school-based gardens and integrated nutrition science in math and life science courses. Despite Agatson’s expertise and the county’s compliance with the program, there was no change in prevalence of obesity at the end of the program (Gilman). In larger-scale studies, it was found that “When energy intake is held constant, short- and long-term trials confirm that diet composition has (perhaps surprisingly) very little effect on energy balance or body weight” (Mela 100). The National Weight Loss Registry has attempted to define what does make five percent of dieters successful at maintaining weight loss for a period of five years, and found that: “Food frequency questionnaires indicated that they consumed a diet adequate in minerals and vitamins, but low in calories (1,306 kcal/day for women; 1,685 kcal/day for men), averaging about 23-25 percent fat, 55-56 percent carbohydrate, and 18-19 percent protein. Participants were also very physically active, expending an average of about 2,800 kcal/week, or approximately 400 kcal/day” (Solovay and Wann 39). These registry participants had lost an average of 66 pounds each for a period of 5.1 years, but their net calorie intake was very restrictive at just 906 calories per day for women. In general, diets are ineffective and the ones indicated by the National Weight Loss Registry are largely unsustainable and do not meet the guidelines established by the Food and Drug Administration.

In contrast to the public health officials who proclaim an epidemic of obesity and recommend weight loss, size acceptance is an alternative view that recognizes body size as largely inherited, persistently unchangeable, and defines body size change as unnecessary and even undesirable. Size acceptance is “a bunch of people—including medical doctors, nutritionists, psychologists...who have looked at the big picture and found that fat-hating culture does serious psychological damage to so many, without actually eliciting the health benefits that are used to justify the hatred” (Harding and Kirby 181). Yet despite the overwhelming evidence
in favor of this view, many practitioners cling to the view that “obesity is reversible and some of its risks can be prevented if corrected in time” (Mancusi 71). Fat activists, however, are skeptical of the fad diets, celebrity endorsements, and proclamations of cures endlessly marketed for curing obesity. To those who support such efforts, fat activists simply say, “Rebound is a bitch, ladies” (Solovay and Wann 269).

**Fat Activism**

Alongside the discourse that shapes fat in terms of “excess body weight,” the BMI, and obesity lies the lived, embodied experiences of fat people. The subject of the discourse of quantification is always compared to a normative standard and there are inevitably those marked as too fat, too big, and in need of body size intervention. The spoiled identity of fatness is so pervasive and so powerful within culture that fat people may hate even their own bodies (Lebesco). Culturally, the woman labeled “fat” “represents the worst of the woman—unmanaged, out of control, her desires overtaking her reason” (Murray 55). The fat body is read as a failure to comply with common-sense principles of eating and nutrition. The pervasive notion that fat equals poor body management and ill health results in mistreatment of fat people.

Because of the anti-fat trends of the medical, nutrition, and diet industries, fatness has turned into a subject-marking experience. In many ways, “the lived experience of fatness inhabits the same space as... the embodiment of race and sexuality” (Lebesco 11). While body size, race, and sexuality have clearly different social histories and result in varying levels of discrimination, fat people are marked as socially othered and somehow less-than. While there are differences in the ways fat men and fat women are treated culturally, “Fat, unlike gender, is written on the body for all to see” and results in a subjectivity that marks personhood (Braziel 79).
Responding to discriminatory social practices, the Fat Underground from 1973-77 viewed “the effort to eradicate fat people via weight loss as a form of genocide perpetrated by the medical profession” (Solovay and Wann 4). The Fat Underground worked to help define fatness as the subject-marking experience it had become by equating the social pressure to eliminate fat with the social consequence of discrimination against fat people. The personal revelation of such discrimination is relayed in Marilyn Wann’s account of her own movement from medicalization to fat activism. Wann realized, “Fat was not a death sentence; it was just a fact. I decided that if a guy couldn’t accept my weight, he didn’t get to date me. I decided that Blue Cross’s label of ‘morbid obesity’ wasn’t a diagnosis; it was discrimination” (10).

Fat activists—with roots tracing back to the Fat Underground—are engaged in a project to “revamp their subjectivities, accord new usefulness to the signifier of fat, and to explore new linkages of affinity and action” (Lebesco 110). These activists work against the health/beauty/medicine triplex to “recognize fat as neither simply an aesthetic state nor a medical condition, but a political situation” (Lebesco 2). In the project of fat activism, the very act of being fat is a subversive cultural practice that challenges received notions of health, beauty, and what is natural. Fat activism reworks the notion of makeover culture, trading in the idea that the body must be perfected, and instead focusing on the fact that body projects are a mark of citizenship and subjectivity.

Generic Response

Within this chapter we have reviewed the some of the factors defining the current social situation constructing our relation to food, health, and self-management or self-care. Tracing back to the late eighteenth century, we can trace the medicalization of fat that moves beyond doctor-patient relations to public policy and social spaces. This medicalization, coupled with
conflations of weight with health, endows some citizens with the cultural capital to perform health and denies the label of “healthy” to others. The pervasive cultural messages—from our national discussion of childhood obesity to daily news reports on fat and diet cures—shape the landscape of our daily practices and habits. With all of the attention directed at fat, a person is interpellated into a dialogue with fat. A person must be lipoliterate, must perform some measure of compliance—or desire to comply with—standards of health and beauty. The common result of this situation is a population that persistently diets ineffectively. A different but related result is the growing industry of bariatric medicine and surgical interventions on weight.

We see results of the social situation surrounding food and fat even in our technologies and tools. One such tool, the electronic food journal, acts as a rhetorical space where users can engage their own eating patterns with body size regulation and USDA guidelines for food intake and energy expenditure. It is where the public health policy recommendations for body management meet the daily practices of self-care and self-surveillance. As a rhetorical mode of production, the electronic food journal provides a space to work out a balance between the social forces of beauty control, the quantification and medicalization of body size, and the self-care practices of feeling well-nourished, healthy, and satisfied. If a genre is a typified rhetorical response to a recurrent situation, the electronic food journal genre acts in response to the modern eater’s sociocultural political foodscape. The electronic food journal operates at the nexus where cultural and medical discussions of fat intersect with individual user actions and individual experiences of health and well-being. As we will see, the electronic food journal creates, shapes, and reflects the difficulties users find in marrying public health policy with individual health concerns and personal health-care practices.
CHAPTER THREE: GENRE ANALYSIS OF THE ELECTRONIC FOOD JOURNAL

Chapter two described the network of actants and concepts circulating around food, eating, and health in the medicalization of public policy and popular culture. This chapter analyzes the electronic food journal for its generic features, structural technological elements, and user functions as individuals begin to incorporate nutrition knowledge in daily dietary practice. We will see how the features of the journals require users to position themselves within the cultural discourse conflating weight and health as described in chapter two and how users navigate, enact, and subvert these larger narratives through their journaling practices.

Genres are powerful forms of communication with recognizable features. Generic forms are based upon what user/writers already know and do. They can be understood as both “typified rhetorical actions based in recurrent situations” (Miller 159) and as a textual part of a situation (Halliday). Because genres always point toward social elements, “part of the meaning they carry resides in the social context” that creates them (Dean 12). Genres form nodes within activity systems wherein “the context of situation, context of culture, and context of genres all influence the actions of writers and readers, speakers and listeners” (Devitt 29).

Genres are not sortable into precise categories and classification systems (Dean). They form genre chains with other artifacts of body management from the complex (like pathology reports, body scans, surgical brochures) to the simple (grocery receipts, Facebook photos, portions of this chapter appeared previously in “Visual Rhetoric in Electronic Food Journaling Communications.” In Professional Communication Conference (IPCC), 2012 IEEE International, 1 –13, 2012.
clothing size tags). The rhetorical actions of individual users are carried out at the nexus between contexts of the body, culture, and the genre itself and those rhetorical actions are situated in complex genre chains. This chapter does not analyze any particular user’s daily journals, but focuses on defining and illustrating the genre as part of the network shaping individual action.

Genres reveal the implicit knowledge and assumptions of users and thus reveal more about our relationships to our bodies and our understanding of health and wellness. The forms created are based on epistemologies that are not always well understood from within the culture that forms them. We cannot, then, take a wholly analytical look at the electronic food journal because it is so deeply embedded in and reflective of the larger cultural approach to health. To fully understand the electronic food journal requires active participation in its ever-changing web environments, and this participation is never static.

Genres give users a platform for rhetorical response and likewise can discourage modes of thinking, being, or communicating that do not fit within the expectations or confines of the genre. One purpose of the analysis to follow is to highlight the modes of communicating about health that are suppressed through the electronic food journal genre’s features and conventions. We learn as much from what is not said in a genre as we do from what is privileged. To that end, this chapter outlines the contours of the food journal genre but also calls to attention what remains outside the scope of the journal. This is not to say that some users do not subvert or repurpose the genre, as we will see that indeed they do. The electronic food journal provides opportunities to enact and embody nutrition discourse, but also to push back against it when necessary.
Genre Efficacy

By examining food intake and energy expenditure, doctors, nutritionists, and dieticians can presumably identify the energy imbalance causing weight gain and make recommendations for alternative eating and exercise plans. The discipline of food journaling has proven effective in short-term fat reduction when combined with decreased caloric intake and increased physical activity. A study of 1700 overweight and obese adults found that “dieters who kept a food diary lost twice as much weight as those who didn’t” (Gupta). Those who “kept a food journal six or seven days of the week lost an average of 18 lb. compared with an average 9 lb. of non-diary keepers” over a 6-month term (Gupta). Researchers contend that food journaling identifies behaviors in need of modification:

While most people think they know what they eat, they really have only a general idea and tend to have selective memory, especially when it comes to the foods that aren’t so good for us. With a detailed food diary, you can see where those extra calories are coming from. (Gupta)

The food journal or dietary record has become an integral part of medical practitioners’ clinical intervention on body weight. In medically supervised weight loss efforts, the food journal is prescribed as a way for patients to examine their eating practices and make changes to eating patterns in order to reduce caloric intake. Since “self-monitoring is the backbone of behavioral treatment for obesity,” food intake records are used in order to obtain “accurate measures on both sides of the energy balance equation” (Mancusi 2).

The United States Department of Agriculture has long published eating recommendations for US citizens. Precisely because the food journal is an effective self-monitoring mechanism, the USDA launched a companion SuperTracker website in December of 2011 “just in time to
help Americans keep their New Year’s resolutions” through monitoring mechanisms described in Appendix A (“USDA Launches New Online Nutrition SuperTracker in Time for Those Healthy New Year Resolutions”). The launch of the website is accompanied by a “Use SuperTracker Your Way” tip sheet (Appendix B). Together, these documents demonstrate the US government’s reliance on the food journal genre as the population seeks rhetorical forms to enable a response to the imperative to reduce body weight and maintain adequate nutrition.

**Methodology for Selecting Examples**

Though the food journal has never before been studied for its generic features, use of the food journal is widespread and multiple journaling mechanisms abound. In my analysis, I have identified features that apply to the many food journal mechanisms I have engaged. The examples highlighted for analysis, however, are culled from only a few selected platforms.

I located examples based upon my own exploration of food journals over the past five years and casual conversations I’ve had with other food journal users. The decision to include the Zestar iPhone app, for example, came after I presented at a conference and an attendee came up to me afterward asking if I had ever used Zestar. When I explored it later, I found it to be unique enough to warrant inclusion in the analysis. In many instances, I would overhear people discussing websites or applications and would then explore them on my own. In casual conversation, on social networking sites, and in formal meetings at work, I have heard men and women, young people and old, fat and thin discuss their preferred methods of food journaling and the tools they use. I’ve noted their conversations and followed up on new tools where possible. This is a non-scientific method for selecting examples to analyze, but one that represents the culturally mediated, embedded, and social nature of our current fascination with body weight management in everyday interactions.
All of the examples I reference require users to have access to computers with Internet access or mobile smartphones. All of the examples, then, are class-biased in that they are not readily available to users lacking either the material means or the technical literacy to engage their use. Some of the examples require paid subscriptions after a free trial, and all require registration with identifying information and an email address.

Additionally, I have attempted to select examples that demonstrate variations within the food journal genre. This means that I have necessarily highlighted some platforms for certain features that demonstrate difference rather than commonalities. Here, the aim is to explore the contours of the genre rather than to form an exhaustive catalog of all electronic food journal mechanisms.

Based upon the selection process outlined above, the analysis to follow will reference examples from the food journal platforms outlined in Table 1. Table 1 lists the journal names, their primary platform and the cost of use (if any).

**Table 1 Electronic Food Journals Analyzed**

<table>
<thead>
<tr>
<th>Name</th>
<th>Website</th>
<th>Mobile App</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Livestrong</td>
<td>X</td>
<td>X</td>
<td>Free basic version; Gold membership $3.75/month</td>
</tr>
<tr>
<td>USDA SuperTracker</td>
<td>X</td>
<td></td>
<td>Free</td>
</tr>
<tr>
<td>MyFitnessPal</td>
<td>X</td>
<td>X</td>
<td>Free</td>
</tr>
<tr>
<td>Zestar</td>
<td></td>
<td>X</td>
<td>Free trial; $12.99/6 months</td>
</tr>
<tr>
<td>PicHealthy</td>
<td></td>
<td>X</td>
<td>Free</td>
</tr>
<tr>
<td>Munch 5-a-Day</td>
<td></td>
<td>X</td>
<td>Free</td>
</tr>
<tr>
<td>CheckOff Diet</td>
<td></td>
<td>X</td>
<td>$0.99</td>
</tr>
</tbody>
</table>

These food journal platforms were selected for their ability to demonstrate the different ways users can position themselves within the genre and the differing structural technological elements.
that power them. In the discussion of devices below, we will see why all of the food journals selected are web-based and mobile applications.

**Genre Characteristics**

Food journals (also called food logs, food diaries, or food records) are available in a number of formats across various platforms. Microsoft’s Word and Excel packages come with food journal and calorie tracker templates with additional variations available for download. A search for “calorie” within Google Docs yields over 30 free downloadable templates of calorie trackers for food monitoring (figure 1).


**Figure 1 Google Templates Search Results**

A person can use a web-based journal, keep a pen-and-paper version, or purchase a diary log from a book retailer. The Weight Watchers program, for examples, advertises its online Points-
tracker as a part of its weight loss program. All food journals, regardless of platform or type, share the following general characteristics:

1. Food journals are used for recording and tracking food intake.
2. Food journals are used to compare eating behaviors against body size measures.
3. Food journals are self-referential: the data recorded will reveal why weight goals are being met or missed.

The food journal acts as a self-assessment tool. Doctors, nutritionists, and personal trainers do not keep food journal records on behalf of patients, except in institutional settings. Instead, the electronic food journal is a space where the user enters one’s own food data. Karen Kratina, a nutritionist studying fat talk among women, has concluded that authorities (in medicine and nutrition science) believe eaters cannot self-regulate and instead “promote externally-regulated, restrained eating” (47). Conventional wisdom maintains that “diet treatments depend on the client adhering to the recommended daily kcalories via self monitoring of their daily caloric intake. Clients are requested to write down each food they eat and the amount of / that food eaten using weight, volume, or portion size” in some type of food journal record (Mancusi 24-25).

Users may do this in a variety of self-determined ways: some people enter food (or mark compliance with recommended meals) as they consume food throughout the day. Others might enter food items in advance, trying to create a combination for planned eating that meets targets related to calories, sodium intake, grams of carbohydrate, or other nutritional information. A user might, for example, enter a day’s worth of food in the morning in order to plan ahead for intake in the day ahead. Likewise, a user might enter a week’s worth of food and meals as they plan a weekly trip to the grocery store. Many medical uses of the food journal rely on the 24-hour recall method (record everything you ate in the last 24 hours) in order to get a baseline for caloric intake. Whether data is entered as one eats, during meal planning, or using recall, the data is self-reported in order to monitor eating behaviors and weight outcomes.
The general genre-defining characteristics of food entry for body size goal maintenance and tracking can be expressed with some variation and depending upon the specificities of some goals. The structural criteria of the food journals reflect and reinforce these genre conventions as users engage with multiple food journal platforms, enter food in multiple ways, and attempt to integrate chronicled nutritional information in livable, useful ways. Users can choose to capitalize on their social networks through these technologies or enact them in private or even subversive ways. However users enact these journals, however, we will see a persistent inability to reconcile daily practices with the clinical data quantified, displayed, and privileged within the genre. The genre-in-use and the journal’s disciplinary functions point toward the tensions between nutritional models of health and body size maintenance and users’ lived experience. To explore the genre, let us begin with the first choices users face: the type of journal to use and their own position within the circulating discourse surrounding weight, nutrition, and health.

**Food Journal Platforms and Modalities**

Food journals operate on platforms from print books and handwritten notations to handheld devices. Handwritten journals are effective for recording aspects of food intake like experiences of pleasurable company or flavors, which are common elements in food memoir and often omitted from the language of nutrition and dieting. Electronic food journals, unlike handwritten formats, lend themselves to carefully monitoring caloric and other quantifiable data and are thus more efficient in recording the food intake information privileged in dieting discourse such as calories, nutrients, and servings. This study takes food memoir, food blogging, and electronic food journaling to fulfill different functions, answer different social constraints, to use different language and, thus, to form distinct genres of communication about food. To examine the trajectory of the food journal that arises in response to discourses of health and the
move to modify body size, then, this study focuses on those journals accessed through electronic devices such as personal computers, tablets, and smartphones.


**Figure 2 Coheso CalorieSmart Handheld Calculator**

Handheld calculators

An important predecessor to the modern electronic food journal is the handheld calorie tracker or calorie planner like those produced by Coheso. The CalorieSmart handheld tracker, for example, comes in two models. The CS80S model houses data internally, and for $49.99 the CS100S (figure 2) includes a USB port and PC Connectivity which allows users to “download all the data to view and print extensive reports and charts” ([http://www.coheso.com/caloriesmart-d.html](http://www.coheso.com/caloriesmart-d.html)). Because these devices are not linked to the web, the data isn’t cross-referenced or shared with any other users’ diaries or databases. In this case, the user enters food into the calculator and relies on the calculator for caloric tabulations. The Coheso corporation also recommends a different device for those monitoring food data and blood sugar readings for diabetes.
Web-based platforms

Web-based, networked food journaling platforms allow information to be tracked, displayed, and accessed on multiple devices and synced within a user profile. A person might, for example, eat a snack at their desk at work and log that entry on the www.livestrong.com MyPlate calorie tracker. That person might then head to a restaurant for lunch with coworkers, and track their lunch items on their iPhone Livestrong app as everyone chats. Dinner might be prepared at home and entered on an iPad while watching television. The information entered on all of these devices is synced within the user’s profile to comprise the daily intake record. Thus, no matter where a person is eating, web-based journals allow users to track intake on any nearby web-enabled device.


Figure 3 PicHealthy iPhone Application

Smartphone apps

Some journals, however, are linked to a specific computing modality. The PicHealthy Photo Food Diary iPhone application, for example, is designed specifically for the smartphone’s specificities (figure 3). Using this app, users upload a photograph of a meal, rate it based on its health, and create a visual record of food consumed. Another iPhone-specific tool is the Zestar
app, which provides meal recommendations to accomplish desired weight goals based upon a personal algorithm. These are different types of journals that display data in different ways by taking advantage of the functional capacities and strengths of the iPhone. They do not, however, work across multiple devices the way the web-based Livestrong journal can.

Combination Devices

Newer variations of the handheld device integrate the features of handheld computers, web-based platforms, and mobile devices. The “FitBit Ultra,” for example, combines motion sensors for counting footsteps and stair climbs, wireless syncing to web-based platforms where food intake can be entered, and companion smartphone apps and a wireless scale that transfer data to these platforms seamlessly. The FitBit monitors non-conscious aspects of health, such as “sleep performance” and “sleep efficiency,” linked of course to wellness and weight loss, tracked via the reporting mechanism, and recorded so that “over time, you can apply what you learn to better understanding what helps you sleep better” ("FitBit Wireless Activity Tracker").

**Figure 4 FitBit Activity Tracker**

This combination device functions to form a more comprehensive data collection and storage mechanism for monitoring health and behavior without the appearance of even being on a diet. The FitBit is described as discreet:

> Unlike bulky, awkward devices that all but scream, ‘Look at me, I'm on a diet,’ the Fitbit Tracker is light and small enough to wear all day without anyone knowing. In fact, it's the smallest fitness tracker out there. Tuck it in your pocket, or clip it to your belt or bra, and you're set. ("FitBit Wireless Activity Tracker")

FitBit monitors movement and sleep patterns automatically, but also allows users to enter food intake data in order to form a more comprehensive view of energy balance. The FitBit website encourages users to

> Pack even more details into your data by logging individual foods and workouts from your smart phone or computer. Find specific foods in our database of over a 100,000 food items, and enter workout specifics from yoga, Pilates, elliptical
workouts, boot camp, spinning, kickboxing, and even Wii games. You can also track your weight and other health indicators like blood pressure, glucose, and heart rate. ("FitBit Wireless Activity Tracker")

This device offers automatic, unconscious data monitoring as well as purposeful, behavior data input including electronic food journaling either online or on smartphone devices. The FitBit, then in its size, its constant data uptake, and in syncing across multiple devices, is the pinnacle of mobile wireless body monitoring tracking by combing the features of mobile, web-based, and smartphone devices.

While each of these food trackers works toward the goal of weight regulation through monitoring food intake, the devices themselves become a way to subcategorize the electronic food journaling genre. The tools available on handheld computing devices are quite different from web-based platforms that can span personal computers, tablets, and smartphones. A user’s decision about which device type to use is largely dependent upon the types of technologies available to her and the forms of computing she is comfortable with. In a study of adolescents, researchers have found that recording mechanisms using technology are preferred over the pen and paper record and “may improve cooperation and accuracy” for young diarists (Boushey et al). The device an eater chooses to use for monitoring reflects their use of technology generally, their eating habits, their preference for pre-planning, and their philosophy regarding how closely the physical and physiological act of eating should be linked both proximally and temporally with journaling itself. Choosing a food journaling platform invariably impacts both the user experience of food journaling and the type of data that is recorded and displayed.

In some ways, the choice of a device modality (print, handheld, web-based, mobile, or combination) also depends upon what a user believes about her own health; as each type
monitors certain aspects of food and eating with more or less precision, as user selects among many possible surveillance mechanisms and, at the same time, which aspects of her life to monitor. To select a journal is, after all, to enroll oneself in the network of a particular kind of nutrition philosophy by ascribing to one of the many ways to categorize and quantify food intake or measures of health.

**Food Categorization Schemas**

While all food journal applications track food intake, there is some variance as to the criteria by which food is characterized. While they together comprise a genre, the distinctions drawn here account for a major difference in the way users experience and interact with the journal by finding a position relative to and within the culture of medicine and nutrition. To choose a journal platform, then, is to anchor aspects of one’s health in relation to certain facets of the medical model for quantified health and nutrition.

Applications like Livestrong and MyFitnessPal focus explicitly on calories and the energy balance equation for weight management. Food items are charted in list form and represented as numerical composites of servings, calories, fat, cholesterol, sodium, carbs, fiber and protein. The food log chart is accompanied by a running total compared with Recommended Daily Allowance (RDA) which shows, for example, when a user consumes 92% of their allotted sodium intake for the day at breakfast (figure 5).

**Figure 5 Livestrong Categorization Schema**

In this schema, food is categorized based on these component parts and referenced to daily numeric totals. Balancing the RDA’s of each nutrient, however, requires specialized knowledge. What should a person do if, by the afternoon, she finds her consumption of calories and carbohydrates on target but fiber too low? Beans or fruit, both known for high fiber content, also contain carbohydrates. To accomplish some values within the RDA, a user might have to compromise others. The mechanism alerts users, however, to patterns of over- or under-consumption of certain nutrients on a recurring basis. The schema for categorization food intake, however, always points back to calorie and RDA tabulations as indicators of balanced and well-portioned food intake with the notion that complying to these measures will lead to positive weight outcomes (which usually means weight loss).
Some applications classify intake by food type (grains, fruits, vegetables, dairy, meat, and oils) and serving sizes rather than calories. A user engaging this type of journal finds value in the idea of proportional food balance—rather than focusing on calories, this user focuses on eating a varied and pyramid/plate balanced diet. The 2011 USDA MyPlate recommendations have changed the proportion of recommended food intake from grains at the base of the old pyramid to fruits and vegetables (pictured instead as half the plate) (figure 6). A user implementing the food group system for tracking intake would need to first figure how many servings of each food group they should consume, which can be found using http://www.choosemyplate.gov/food-groups/. The website might suggest, for example, that a woman 31-50 years of age needs 2.5 cups of vegetables per day. An accompanying chart shows precisely what counts as a cup for each type of vegetable. Thus, once an eater knows how many servings of each food group are recommended, she can use an application like the CheckOff Diet Tracker to mark consumption of each food type.
CheckOff Diet Tracker. 3 Apr 2012. iPhone Version 1.1

**Figure 7 CheckOff Diet Tracker Categorization Schema**

After an individual knows which food groups are recommended, an app like The Check Off Diet Tracker provides a medium for tabulating the type of each food consumed (figure 7). In this classification scheme, a user counts and measures serving sizes rather than calories. The user implicitly accepts that eating balanced by food groups meets nutritional needs, and thus things like fiber and sodium are not quantified. This method of eating, it should be noted, relies on the ability to detect serving sizes, which is an area eaters have notably had trouble with as portion sizes have increased. It also becomes difficult to track, say, *half* a serving of fruit when the only option is to either check “1 cup of fruit consumed” or to not check off fruit at all. In any case, this creates a different way of related to food items than a caloric journal. This will alert users to deficiencies in their fruit and vegetable intake, for example, or warn against overconsumption of oils and grains.
The Munch-5-a-day app uses the food group categorization tool as well. It was designed for adults and for children in order to encourage consumption of five servings of fruits and vegetables per day. Its simple interface and user-friendly design allow it to accomplish this task. The “Goals” screen allows users to select the daily serving goal (a number between one and 12) and a time for daily reset back to zero. After making that selection, the “Home” screen provides two icons. A stylized apple represents fruits and broccoli represents vegetables (figure 8). Each time a serving of fruits or vegetables is eaten, the user can tap one of the icons and add to their daily serving goal. There is no typing, no data input, no work at all except to tap on one of two icons. Interestingly, this icon excludes the other foods groups—grains, dairy, oils, and proteins—and focuses only on these most under-consumed foods. One might think that this way of categorizing intake focuses on wellness and nutrition by *avoiding* talk of calories. It focuses on getting *enough* rather than restriction.
Figure 8 Munch 5 a Day Categorization Schema

The Story of Farmer Munch (Appendix A) accompanies the application and outlines the goal of consuming five fruits and vegetables today. In the tale, Farmer Munch is fit and vigorous, eating his fruits and vegetables with gusto. The Farmer’s wife Candy and their dog Chips, however, “eat sweeties and snacks… relax… [and] get bigger!” Farmer Munch buys Candy an iPad and Chips an iPhone, and with the use of their Munch-5-a-day app, say “farewell to those hips!” (figure 9). Clearly, the goal of fruit and vegetable consumption is to replace “bad” foods and to ultimately reduce body size. Eating fruits and vegetables, then, is not a matter of feeling excellent or being well-nourished, but of avoidance of fattening foods. This logic follows from the USDA MyPlate image, where fruits and vegetables claim space that might otherwise be allotted to overconsumption of calorie-dense foods like oils and cheeses or vitamin-sparse foods like grains. A user engaging this type of mechanism might believe that if she could simply
replace some of the non-nutritious food in her diet with more nutritionally dense fruits and vegetables, the rest of her diet would balance out. Or she may simply find that tracking intake of fruits and vegetables leads to more careful meal planning and more vigilance about nutrition generally, without having to tabulate calories or all food groups. In any case, this user believes fruit and vegetables to be the heart of a well-balanced diet and the key to meeting health and weight goals.

Munch 5-a-Day. 17 Apr 2012. iPhone Version 1.1.

**Figure 9 The Story of Farmer Munch**

Aside from caloric tracking and food group classification, The PicHealthy app works in a different way. With the app open, users can snap an image of the meal or snack and fill out the following “Food Details” fields: How Healthy (rate using 1-5 heart/apple icons), How Tasty (rate using 1-5 silverware icons), What I ate (optional description), Where I ate it (optional description), and Calories (total) (Figure 10). The last option is to enable Facebook sharing. In
this schema, the user selects a meal and then self-determines whether it is healthy or not. Healthy here could mean anything—wholesome, organic, low-fat, low-calorie, low-carb, high protein, locally grown, sustainable, or financially responsible. The user herself can rate the healthiness and then the taste, which is rare in the food journaling genre. By incorporating a description of taste and where the food was eaten, this application incorporates some elements of the food memoir, which accounts for experiences and pleasures rather than simple nutritional data. The application cannot itself determine caloric content of the picture foods, but it allows users to enter these data as desired. A user selecting this type of food journal, then, positions herself within medical discourse surrounding health by electing to monitor food intake, but can do so by choosing any number of criteria to determine what “healthy” means. This journal can be used in multiple ways, dependent upon the user’s own purposes and criteria for defining a healthy meal.
Electronic food journals function to classify, rank, and categorize foods in relation to some health goal. Users engage them by choosing platforms based on different models of healthful eating: calories and nutritional profiles, food groups, and some aspects of the eating experience. In each of these cases, “healthy” is related in some way to compliance with a normative standard (even if that standard is self-defined) in order to measure daily food intake. No matter which type of journal is chosen, engaging in one of these categorization schemas is to situate oneself rhetorically within a specific dietary discourse and to view food and nutrition according to the schema’s paradigm. Enacting a journal and its mechanism for categorizing food, then, is to enact a model of health and nutrition in one’s daily eating practices.
Gender Positioning

While data on the demographics of food journal users are not publicly available, dieting and preoccupation with fat have been linked historically to women (Bordo; Braziel and Lebesco; Davis; Diamond; Fraser; Gimlin; Heyes; Lebesco; Lupton; Murray; Smolak and Murnen; Zaslow). We do not know the number or gender proportion of users currently using food journal applications; though it is not publicly available, these data are collected upon registration with every website and application analyzed within this chapter. Without knowing the demographics of who actually uses these tools, we can only make inferences based upon the assumptions implicit in the design and advertisements. While electronic food journals are clearly marketed to and used by both men and women, the gendered nature of body modification is explicit within their designs. The journals themselves require users to take a gendered position and to define their goals in terms of their reported sex.

Livestrong’s web-based food journal is one tool marking gender as an explicit differentiator in user functionality. This journal is freely available upon registration at http://www.livestrong.com/myplate/. After providing an email address and selecting a username for registration, diarists are prompted to select between two tabs at the top of the screen: “Man” and “Woman” (see figure 11).

**Figure 11 Livestrong Man vs. Woman**

It is impossible to proceed in the site registration process without positioning oneself as either a man or a woman as depicted on screen. The reason for gender differentiation is unclear, as welcome screens within each section focus on fat burning and fat loss. Both the Men’s and Women’s portal provide imagery and phrasing focused on building muscle. The exercise tips are different, but the stated goals remain the same: fat loss and increased lean muscle mass. We might expect the gender differentiation to generate targeted advertising on the site’s sidebar, but my profile within Livestrong is set up as Female and figure 12 shows a screenshot of the day’s advertisements: a Michelob Ultra beer golf tournament and an ad exclaiming “I gained 36 pounds! Using MyPlate.” Golf, beer, and excitement about weight gain are not the types of advertisements a woman usually experiences on diet-related sites. The ads are, as always,
directed toward some type of ideal body size and change toward that standard (weight increase or loss).


**Figure 12 Livestrong Advertisements**

While not every electronic food journal employs such an overt gender distinction as the “Man” or “Woman” at the outset, every freely available online platform asks users to identify as “male” or “female” at some point in the registration process. Even in applications like Check Off Diet where food groups are simply marked off, users experience gendered language and differentiation in the work of gathering information about how much of each food group is recommended. In order to track food by groups, a user will have to know how much of what type of food is needed. In order to find this information, a user might turn to the USDA’s website for the MyPlate and MyPyramid applications, both of which tabulate intake by groups but also
suggest that users maintain energy balance. At http://www.choosemyplate.gov/food-groups/, Americans can review the food groups and then click on each one for descriptions, serving sizes, and recommended preparations and meal ideas. For each food group, a chart is provided that shows recommended intake based not on weight, body size, or activity level, but by age and gender. Figure 13 shows the recommended servings of vegetables.

![Screenshot of the recommended servings of vegetables](image)


**Figure 13 USDA Recommendations for Vegetable Intake**

We see here that children are differentiated into age groups 2-3 and 4-8, and then at age 9 are separated by gender. Beginning at age 9, girls are prescribed to eat less than boys.
Perhaps due to the popularity of low-carbohydrate diets, the Grains recommendation chart (figure 14) includes a daily recommended minimum amount.

“USDA Guidelines for Grain Intake” Screenshot Choose MyPlate. 6 Jun 2012.

**Figure 14 USDA Guidelines for Grain Intake**

Here, we see that adult women can remain in compliance so long as grain consumption remains above 3 one-ounce servings, which is equivalent to the recommended eating pattern of a 2-3 year old child. Dairy is the only food group where intake remains level across gender in parallel age groups (figure 15).
Food journals normalize a model of health aligned with feminine bodily comportment and gender performativity of the thin ideal for women by creating two distinct gender categorizing based on the slim female and the muscular, slim male. These gender categories allow for very little differentiation within each gender (women with more muscular frames or men with a more slender ones). Because the general prescription is for women to eat much less than men—despite individual differences among women in muscle mass—the guidelines reinforce gendered methods of body surveillance and control. They minimize the difference among women and maximize the difference between women-on-average and men-on-average. These methods and their relation to gender will be described in more detail later in the chapter.
We can conclude, however, that the medical-nutritional intake guidelines do a far better job of focusing on women’s bodies than on women’s lived embodied experiences.

Once a user chooses a device (handwritten, handheld, web-based, mobile, or combination) and the type of dietary paradigm to follow (caloric, pyramid-based, food group focused, or some other self-determined criteria), she is then situated within a particular health discourse that relies in part on the function of gender in assessing user intake and compliance. After positioning oneself in these multiple ways, a user is then able then to engage a journal, participate in its philosophy, and begin using the data for self-referential body surveillance and maintenance. The structural technological elements that power electronic food journals—which include graphic user interfaces, databases, and visual output artifacts—are experienced as a result of the user positioning herself within medical and scientific discussions of health and body size within the circulating cultural discussion of fat and health. Her journal’s structural elements then characterize the way she experiences, lives out, and implements the health data presented within the journal.

**Graphic User Interfaces**

The graphic user interfaces (GUIs) of electronic food journals act as a way to sort and filter biological data, allowing one “to quickly access, sort, and reorganize millions of records; it can contain different media types, and it assumes multiple indexing of data, since each record besides the data itself contains a number of fields with user-defined values” (Manovich 214). The values charted in a food diary are determined in part by the way a user positions herself within dietary discourse as she selects a journaling platform and a categorization schema for food intake and measures of health. Beyond those choices, the user experience in manipulating each tool’s interface plays an important role in what becomes not just the journaling experience, but
the eating experience. Robert Johnson’s concept of user-centered design is important for food journaling technologies because these tools so completely reflect the system design of the medical profession and the nutritional pyramid. Each user interface evidences assumptions about the conditions of use and the user’s ability to comply with dietary data. The messages conveyed on-screen, in other words, become the messages that relate our larger diet culture to our daily habits. Choices within the GUIs relate a subject to that diet culture and provide cues as to one’s role as an eater.

Zestar Diet Pilot. 5 Apr 2012. iPhone Version 1.1.0

**Figure 16 Zestar Interface**

The interface on the Zestar homepage, for example, allows users to view drawings of whole food items. Lunch on a particular day might show a picture of a salad, a small steak, and a scattering of blueberries (figure 16). Using this application, the meal is a suggestion based upon BMI and weight goals. As the figure shows, a user can comply with the suggestion, ask for
recommended substitutions, or select a different meal from the database. The image, though, is one of wholly pictured food items rather than numeric data. Even if a user wants to get caloric information on these food items, it is not readily available on-screen (figure 17).

Zestar Diet Pilot. 5 Apr 2012. iPhone Version 1.1.0

Figure 17 Zestar Interface with No Calories

The same meal entered on the Livestrong website, however, visualizes the food numerically in terms of total calories (figure 18). The interfaces, then, in their adherence to different models of health and well-being, represent the same user actions differently. The food itself might be the same, but the graphic user interfaces in different journals reflect the eating experience in different ways, thus impacting the eating experience in different ways.
MyPlate Calorie Tracker. 5 Apr 2012. iPhone Version 3.0.3.1202272226

**Figure 18 Livestrong Numerical Representation**

In this same meal, a user’s purchasing experience is portrayed differently. In the Zestar app, a dieter is directed toward certain food items (a mixed greens salad, for example). No mention is made of serving size (except the visualization provided by the image), and no mention is made of a particular brand or company. I could obtain this salad at a restaurant salad bar or by stopping at the grocery store to choose from a variety of pre-packaged mixed green salads. On Livestrong, however, as soon as I enter “mixed green salad,” I am faced with a variety of choices by brand name. Is it the Cosi brand? Is it from one of the restaurants listed? Which mixed green salad, specifically, am I eating? The choices become all the more specific as we move on to entering “low-fat salad dressing.” Within the GUI, then, there are fundamental changes in user experience when designers express an interest in branding items or displaying numbers rather than foods. The user experience of data entry and of the meal itself is impacted by these design choices.
In looking specifically at smartphone applications, apps tend to have three to five icons on the navigation bar at the bottom of the screen. The icon functions are graphed below:

**Table 2 Food Journal Application Icons**

<table>
<thead>
<tr>
<th>Application</th>
<th>Icon 1</th>
<th>Icon 2</th>
<th>Icon 3</th>
<th>Icon 4</th>
<th>Icon 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Livestrong</td>
<td>MyPlate</td>
<td>Diary</td>
<td>Progress</td>
<td>Community</td>
<td>More</td>
</tr>
<tr>
<td>MyFitnessPal</td>
<td>Home</td>
<td>MyDiary</td>
<td>Progress</td>
<td>Friends</td>
<td>More</td>
</tr>
<tr>
<td>Zestar</td>
<td>Home</td>
<td>Food</td>
<td>Activity</td>
<td>Weight</td>
<td>Profile</td>
</tr>
<tr>
<td>PicHealthy</td>
<td>How Healthy</td>
<td>MyFoods</td>
<td>Camera</td>
<td>Scores</td>
<td>MedHelp</td>
</tr>
<tr>
<td>Munch 5-a-day</td>
<td>Goals</td>
<td>Home</td>
<td>Info</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Check Off</td>
<td>Set</td>
<td>Past</td>
<td>Read</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Users will notice broad consistency among the applications in both what they track and the types of data conveyed in each navigational schema. The MyPlate, Home, and HowHealthy screens provide overview information and pictorial representations of application features. Whether termed Diary, Food, MyDiary, MyFoods, or something similar, this portion of each application is used as the primary logging mechanism. If the application quantifies food into calories or nutrients, it will be listed within this section. Each tool tracks weight and compliance to nutritional goals under Progress, Scores, or Weight. Within this feature, data are often represented in graph or pie chart form to show weight change over time. These interfaces offer simple ways to access data related to the food consumed and relatively consistent categories through which food behaviors are schematized. The consistency lends itself to usability, and the graphic user interfaces allow direct manipulation of data using touchscreen rather than typed commands or data entry.
The electronic food journal acts as a visual representation of digestive process and daily eating habits. Not only does the journal visually depict food in terms of calories, nutrients, or food groups (as described in the food categorization schemas section), but the applications also serve as a way to mine this data for patterns and present daily intake in chart and graph format. The use of these graphics varies across applications. The consistent presence of the graph-as-output, however, remains one of the defining features of the electronic food journal. Table 3 maps the visual output by food journal.

Table 3 Visual Output by Food Journal Application

<table>
<thead>
<tr>
<th>Application</th>
<th>Food</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Livestrong</td>
<td>Calorie and nutrient graph (day, week, month)</td>
<td>Weight line chart</td>
</tr>
<tr>
<td></td>
<td>Macronutrient pie chart (meal, day, week, month)</td>
<td>BMI line chart</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Inches graph</td>
</tr>
<tr>
<td>USDA SuperTracker</td>
<td>Calorie, nutrient, food group graph and pie chart (meal, day, week,</td>
<td>Weight line chart</td>
</tr>
<tr>
<td></td>
<td>month, or longer)</td>
<td>Weight data graph</td>
</tr>
<tr>
<td>MyFitnessPal</td>
<td>Daily and weekly summary in table, bar chart, and pie graph formats</td>
<td>Weight, neck, waist, or hips line chart (1, 2, or 3 month)</td>
</tr>
<tr>
<td>Zestar</td>
<td>Calendar color-coded for compliance with suggested meals</td>
<td>Weight line chart; displays ideal weight line</td>
</tr>
<tr>
<td>PicHealthy</td>
<td>Score ranking chart for Healthy, Participation, and Honesty</td>
<td>None; links to weight tracker companion apps</td>
</tr>
<tr>
<td>Munch 5-a-Day</td>
<td>Unlocked cartoon icons for meeting fruit and vegetable goals</td>
<td>None</td>
</tr>
<tr>
<td>CheckOff</td>
<td>Portions consumed chart by day only</td>
<td>None</td>
</tr>
</tbody>
</table>

Graphs that group intake by nutrient types (fat, protein, and carbohydrate) are kaleidoscopic in that they can report on a particular meal, a day, or a longitudinal period of a week, month, or more. The pie chart representation means little when considered on its own, except that it might lead a user to consider her diet too high in fat or carbohydrates.
Weight charts within these electronic mediums are typically shown as bar graphs changing over time. They demonstrate whether the eating recorded has resulted in getting closer to some preset goal weight, either determined by the application or via user input. This graph is meant to be read in comparison to the eating behaviors recorded, as symbolic of either failure or success. It represents, after all, the goal and primary purpose of the food journal record—to achieve a target for weight. A set of behaviors that do not result in movement toward a weight goal would cue the user to reevaluate food intake and to select a new set of behaviors.

MyPlate Calorie Tracker. 30 Apr 2012. iPhone Version 3.0.3.1202272226

Figure 19 Livestrong Calendar

Several applications use a calendar mechanism to demonstrate compliance. This functions to show (1) how regularly a user enters data and (2) how often a user complies with dietary advice. The Livestrong app, for example, shows a monthly calendar with days blocked
into four possible colors: green indicates a day where food intake did not exceed caloric
recommendations, red indicates days calorie totals were exceeded, gray indicates no food data
recorded, and “today” shows as orange (figure 19). The green/red symbology, of course, relates
to the cultural uses of the colors for go/stop or for red to indicate caution. Despite the nuance of
daily behaviors and eating patterns, however, there is no nuance within this schema: colors are
not gradient. Whether one exceeds the recommendation to eat 1104 calories by 7 calories or 700
is not reflected in the calendar visual. What matters is simply compliance, and not a degree of
variance from the recommendation.

Figure 20 Zestar Calendar

The calendar function within the Zestar app also operates by month and using the color
red to indicate noncompliance (figure 20). This app does not work by tabulating calories, but by
providing meal suggestions. It may recommend six ounces of Greek yogurt, one cup of strawberries, and an English muffin with two tablespoons of peanut butter for breakfast. The calendar maps compliance to these recommendations. Each block within the calendar is divided into sections (the top third of day symbolizes breakfast, the middle third lunch, and the bottom third dinner). Circles symbolize snacks as scheduled. A “blank” gray day with a star on the calendar demonstrates full compliance with the recommendations and no substitutions. If a user substitutes part of a meal (a chocolate scone instead of that recommended English muffin, for example), or chooses “I ate something else” (like leftover pizza), these choices will result in red shading for the top third of the calendar for that day. Compliance to lunch and dinner though, would result in gray shading for the remainder of the day. Lack of journaling will result in red shading. In this schema, the perfectly compliance journal would result in a calendar graphic with no red marks and a star on each day.
Figure 21 USDA SuperTracker My Reports Interface

The use of visual output charts to track intake over time is pervasive as part of the graphic user interface within the electronic food journal genre. The USDA SuperTracker demonstrates the importance of the graph as a “report” to evaluate behavior in Figure 21. In this image, we can see the interface for users to select reports by food groups, calories, nutrients, meal composition, exercise, and weight. Within each of these portals, users can generate data by selecting a beginning and end date range and then selecting whether output is preferred in pdf, Excel, or Word format. The purpose of the report is to “see where you’re meeting your goals and identify areas you’d like to work on” ("USDA Launches New Online Nutrition SuperTracker in Time for Those Healthy New Year Resolutions"). Within this application and other food journals, viewing and interpreting data is imperative for reaching health and body weight goals.
Use of Databases

A food journal functions to record food intake. With the exception of institutional settings (such as in-patient eating disorder treatment facilities), this is a self-reporting mechanism. User-reported food data, however, becomes collaborative not only through community created by overt social networking (groups, friends, message boards), but also through the implementation of database mechanisms powering the sites.

Livestrong, MyFoodPal, SuperTracker, and Zestar, for example, record food intake by specific food item and serving size. Because the individual nutrient information is recorded, the specifics of the item eaten are essential to calculating caloric and nutrient intake. The SuperTracker offers a feature in its Food-a-Pedia in order to compare two food items side-by-side. A chicken sandwich, for example, is generally understood as a healthier choice than a cheeseburger (chicken is more lean than beef), yet the comparison feature demonstrates precisely how different two chicken sandwiches can be. The comparison of a fried Chick-fil-a chicken sandwich to a broiled chicken sandwich from Wendy’s (figure 22) shows the surprising reality that broiled is not necessarily more diet-friendly (even after substituting a non-mayonnaise spread on the Wendy’s version).

**Figure 22 Food-a-Pedia Comparisons**

The fried sandwich has more saturated fat and empty calories, but fewer calories overall. The broiled sandwich has a half cup of vegetables, less saturated fat and fewer empty calories, but more sodium, sugar, oil, and total calories. Food choice is complicated when considering the micronutritional content of a meal within the context of a specific diet.

To enter a food item like a “cheeseburger,” then, requires reporting of the brand as well. If prepared at home, food diarists will need to enter each ingredient separately, including the number of ounces and the fat content of the beef (80 or 95% lean?), the specifics of the cheese (low-fat cheddar or whole-milk mozzarella?), the type of bun (how large? Whole wheat or enriched white flour?) and the condiments used (low-fat, reduced-calorie, or regular
mayonnaise? Dill, sweet, or reduced-sodium pickles?). Changing any one of these cheeseburger factors will vary the nutrient profile of the meal.

This specific food and nutrient information is crowd sourced so as to reduce the input time for individual users. If I ate, for example, a cheeseburger from McDonald’s, I could quickly search the journal platform’s database and identify the closest match, and within a couple of clicks import that food item data into my journal (including calories, fat grams, etc.). If I search for a food item that is not available in the database, I can enter the nutritional profile of the item manually and it then becomes a part of the database. The unique food items entered by users are stored and saved to a collective, searchable repository that reduces the time each user must spend entering meal data. Thus, users pool their effort and contribute to the richness of the database with number of items added.

The downside, of course, is that the database mirrors the complexity of food choice eaters face in real-world settings. I may want to enter a serving of yogurt, but I have to sift through the equivalent of every yogurt available in every grocery store in order to find the one that matches what I’ve eaten. The database simplifies food data input, but reifies the complexity of the food landscape. In an effort to model appropriate food choice according to an individual’s criteria for health, the food journal reflects the number of infinite possibilities in meeting those needs.

Zestar, however, takes a somewhat different approach in that it functions by suggesting rather than simply recording meals. Developed by a nutritionist and explicitly focused on not counting calories, Zestar works by hiding the nutritional value of foods within the database and displaying only pictorial representations of foods and serving sizes in meal suggestions.

The application relies on an algorithm that sorts foods in order to meet daily requirements of foods such as fruits, vegetables, and proteins, but does so behind-the-scenes without asking
the user to consider any of that information. Instead, the user opens the app, sees the day’s meal suggestions, and has the choice to (1) eat that food as suggested, (2) request a substitution, or (3) enter “I ate something else” (refer to figure 17). The “proprietary algorithm constantly adjusts Zestar’s recommendations in real-time to keep you on track even when you decide to indulge” (http://www.zestarapp.com/about/).

If a user requests a substitution from Zestar (say, something to replace eggs at breakfast), the app will run its algorithm to look for something with a similar nutritional profile (Greek yogurt) and then update future meal suggestions for later in the day if needed. The difference between the items in the Zestar database and the calorie-counting food journals, though, is that users can only select from among existing options and cannot enter nutrition information for a food not included in the database. If a user selects “I ate something else” to track the choice to eat yellow rice instead of sweet potato, the user will encounter only two options: white and brown rice. Whereas MyFitnessPal reveals 25 initial choices for “yellow rice” (with a “Show more results…” option), Zestar requires that the user simply choose the closest substitute from within the database. This database, then, is owner-controlled and maintained and not open to user input. This follows Zestar’s rhetorical construction as a “nutritionist in your pocket” (where the app is the nutrition expert) and the user is a subject choose among suggestions. Zestar aims to empower users, but black-boxes both nutritional data and closes off the ability to choose from among some of the food choices available to consumers.

The database of the food journal provides endless variations of elements that can be filtered, transforming input to yield new output and changing the logic of eating at large to certain algorithms and patterns rather than pre-noetic intuitive bodily processes.
Users, we have seen, begin engaging the electronic food journal by situating themselves within the multiple discourses of health and nutrition by selecting a computing platform, a categorization schema, and by enrolling in the gendered nature of the journal. These choices result in a user engaging a rhetorical mode of belief about food, health, and eating and then assessing one’s activity based upon those positions. The structural elements of these electronic food journals provide graphic user interfaces, database mechanisms, and tracking artifacts that power the journal and provide the means for self-surveillance and assessment. One final choice for the user, then, is to select how to incorporate one’s communities within these tools. No matter which journal type, categorization schema, device, database mechanism, or interface a food journal relies upon, users face choices about whether to (or how to) engage their online journaling data with their real and virtual communities.

*Use of Community*

Electronic food journals share characteristics with social media that use “friends” or “circles” mechanisms. The chart below outlines how each application engages community based on internal features (messaging, commenting, friends) or using external social networks like Facebook and Twitter:
Table 4 Internal and External Mechanisms for Building Community

<table>
<thead>
<tr>
<th></th>
<th>Internal Community</th>
<th>Share on Facebook or Twitter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Livestrong</td>
<td>Yes (post and receive messages, add friends, circles, and fitness loops)</td>
<td>Yes</td>
</tr>
<tr>
<td>MyFitnessPal</td>
<td>Yes (Friends, Requests, Messages, newsfeed about user activity)</td>
<td>No</td>
</tr>
<tr>
<td>Zestar</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>PicHealthy</td>
<td>Yes (food is “scored” by other users, top users are listed under the categories Healthy, Participation, and Honesty).</td>
<td>Yes</td>
</tr>
<tr>
<td>Munch 5-a-day</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Check Off</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>SuperTracker</td>
<td>No</td>
<td>Yes (will post to Facebook and Twitter to share site address only)</td>
</tr>
</tbody>
</table>

On the Livestrong platform, for example, one can belong simultaneously to a “Florida cyclists” group and to a “working moms of preschoolers” or “thirty somethings” group. Within the groups, you can add friends, share journals, and create discussion posts. It is common to develop ongoing relationships by sharing meal ideas and providing support in these diet-focused communities.

Members who are friends within the Livestrong community can comment on one another’s food intake. These social structures become a space to demonstrate compliance to diets or publicly admit failure. Enrolling in diet-specific communities within this framework (a group devoted to Paleolithic eating versus a Weight Watchers collaboration) provides context for the narrative of an individual diary. Graham crackers and fruit snacks might look like an odd snack choice to members of a twenty-something group, yet the moms-of-toddlers community will implicitly understand precisely how an adult woman may come to choose a peanut butter and
jelly sandwich for lunch (the kids wanted it and making one lunch is easier than making two).

The way a journal is interpreted depends upon the communities in which one is enrolled.

MyPlate Calorie Tracker. 5 Apr 2012. iPhone Version 3.0.3.1202272226

Figure 23 Livestrong Support Email

The Livestrong site’s companion app allows for a different type of community for users. Within the app, the “Community” icon allows users to post and reply to a stream of messages. This is not the same Friends mechanism used on the web-based site, however, and the circles feature is less apparent in the mobile app. The app does, however, have a feature within its settings to send out a “Support Me” email to friends and family already in one’s phone Contact list. The email template reads: “Dear Friends: I’m trying to track my calories with the LIVESTRONG.COM Calorie Tracker to help manage my weight and live a healthy lifestyle. Please support me in this effort. Thanks.” (figure 23). The email provides a link to the app and
very little information on how to support the dieter. We might assume this is a marketing tool to spread interest in the website rather than to garner any kind of real support for the user.

However, the ability to notify friends and family of participation and the explicit goal to manage weight engages one’s existing community in the effort.

MyFitnessPal iPhone App. 9 Apr 2012. iPhone Version 3.3.1891

Figure 24 MyFitnessPal Community

The MyFitnessPal app takes a bit different approach. Rather than setting a user up with circles based on mutual interest, the “Friends” icon directs the user to a message board. The “news” feature broadcasts successes and also warnings like “meggriff has not logged in for a month. She might need some encouragement” (figure 24). This news feature provides positive reinforcement for continual participation and a reprimand of sorts for lack of participation.
Within this feature, users can also view Friends, Requests, and send and receive Messages. The same features are available on the MyFitnessPal website.

PicHealthy has a complex community ranking system. We have established that foods are ranked as healthy on a scale of 1-5 heart/apple icons. As a user uploads an image, she can classify the item as healthy or not. In the “Scores” section of the app, however, users learn that they can earn points for both eating healthy foods, but also when other users rate food intake as healthy. Users also earn points for honesty by uploading photos of foods rated as unhealthy and having those scores verified by other users (figure 25). Points are also earned for participating by commenting on and ranking other users’ food choices. This points system encourages community participation, but it is based on the ranking system. The problem with this system is the vague language of “how healthy.” That depends on the user’s needs and on one’s personal criteria for measuring health (low-calorie versus home-cooked, for example).
Figure 25 PicHealthy Community

Munch 5-a-day has no internal community mechanism, but it does make sharing with existing social networks easy. The “Info” page has a quick “Enable Sharing” link where users can post progress to Facebook or Twitter. While each of the apps enables Facebook sharing, Munch 5-a-day avoids the common internal community mechanisms and explicitly aims to extend into existing social networks outside the application.

Food journaling groups, commenting, food scoring, and messaging services create community among users, but create a mechanism through which members monitor one another. The practice of electronic food journaling is always already a community endeavor, as users rely on the knowledge of food experts, but the functions embedded within the technologies make this community-orientation evermore apparent. Through internal, app-driven social circles or
extended into more pervasive platforms like Facebook and Twitter, these technologies are enacted in and through social networks.

**Types of Foods Created by the Food Journal**

When food is quantified calorically and rated based on stated caloric equations, the very ways in which foods are classified begin to change. The numbers-driven economy of food journaling has two profound impacts on the types of dietary choices that gain favor by virtue of the genre conventions by privileging (1) low caloric density and (2) quick access to food-nutrient data.

This schema of food quantification changes the food landscape. In essence, the drive toward calorie-restriction produces new food products. Grocery store produce departments now feature salad dressings that contain literally zero calories. One researcher describes her encounter with zero-calorie dressing:

> I was looking at the equivalent of the gastronomic simulacrum. It looked like something was there, but nothing was. Nutritionally and figuratively, this was a bottle of nothing... Why would anyone pay $3.99 to put *nothing* on a salad, and, why would a company use a discourse of quantification to advertise that they are selling nothing? ‘Nothing’ came in 15 flavors including French, Country Italian, Russian, Bacon Ranch, and Bleu Cheese. (Mudry 169)

Within the discourse of quantification and weight regulation, consuming food without consuming calories is ideal. We know, of course, that these simulacral foods *do* have materiality, and that they are in fact made up of artificial flavorings, preservatives, and emulsifiers that enter

---

3 Food has historically been classified as “good or bad, masculine or feminine, powerful or weak, alive or dead, healthy or non-healthy, a comfort or a punishment, sophisticated or gauche, a sin or a virtue, animal or vegetable, raw or cooked, self or other” (Lupton 1-2).
into the digestive system without producing any energy value. These foods mark a shift in why, how, and what we eat based upon the imperative to reduce and restrict the energy value we ingest.

The second impact of the numbers-driven economy of food journaling is the movement toward foods with clearly labeled ingredients and nutrition data because they are much simpler to input into electronic journals. A processed frozen food item like a Ham and Cheese Hot Pocket is a quick entry: because of the collaborative database and the likelihood that someone has already entered the food label information, entering this item is as easy as searching and selecting the food item. Even if a processed food item is new to the database, entering its information is as easy as copying data from the Nutrition label. A homemade ham and cheese sandwich, however, requires more labor in the kitchen and in the food journal. Let us consider the keystrokes for entering a turkey dinner on a database-driven, calorie-tabulating mechanism like the web-based Livestrong food journal (Table 5).
### Table 5: Keystroke Comparison

<table>
<thead>
<tr>
<th>In “What did you eat?” field</th>
<th>Type “lean pocket”</th>
<th>Type “ham”</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scroll to “Ham and cheese pocket (Lean pocket)”</td>
<td>Scroll among choices to determine closest match.</td>
<td></td>
</tr>
<tr>
<td>Click “Ham and cheese pocket (Lean pocket)”</td>
<td>Click “Sliced ham Serving Size: 1 Slice (6-1/4” x 4” x 1/16”) (28.0g)”</td>
<td></td>
</tr>
<tr>
<td>Click “I Ate This”</td>
<td>Click “I Ate This”</td>
<td></td>
</tr>
</tbody>
</table>

In “What did you eat?” field  
Type “swiss cheese”  
Scroll among choices to determine closest match.  
Click “Sargento Swiss Cheese Slices”  
Click “I Ate This”  

In “What did you eat?” field  
Type “whole grain bread”  
Scroll among choices to determine closest match.  
Click “Arnold Whole Grain Classics 7 Grain Bread”  

In “How much?” field  
Type “2”  
Click “I Ate This”  

In “What did you eat?” field  
Type “mustard”  
Scroll among choices to determine closest match.  
Click “Grey Poupon Dijon Mustard”  

In “How much?” field  
Type “2”  
Click “I Ate This”  

In “What did you eat?” field  
Type “tomato”  
Scroll among choices to determine closest match.  
Click “tomato slices”  

In “How much?” field  
Type “3”  
Click “I Ate This”  

In “What did you eat?” field  
Type “pickle”  
Scroll among choices to determine closest match.  
Click “Vlasic Stacker”  

In “How much?” field  
Type “2”  
Click “I Ate This”  

Total processes: 4  
Total calories: 280

Total calories: 332
The comparison of these keystrokes shows the difference between user processes in entering a ready-made, frozen ham and cheese meal versus the home-prepared ham and cheese sandwich. With four keystrokes compared to 28, the food journaling economy favors read-made meals.

We have to remember, too, that the home-prepared sandwich is still made using store-bought ingredients such as prepared bread. To use homemade bread would require entering the recipe totals (flour, water, eggs, etc) into the food journal and then dividing by the number of servings to find the nutrient content of one slice. Choosing fresh, homemade foods becomes laborious not only in the kitchen, but also on the keyboard.

In a clinical setting with pre-measured, pre-planned meals for just a 24 hour period, the complexity of figuring food record data based on the Food and Nutrient Database for Dietary Studies (FNDDS) is described:

Of the foods sampled for analysis, 12 linked directly to one food code in the United States Department of Agriculture (USDA) Nutrient Database for Standard Reference (SR), and 8 were combination foods. The cheeseburger sandwich served at the lunch meal did not directly match a food code in the FNDDS. Using the FNDDS food codes of the individual food items in the cheeseburger sandwich, a combination was constructed to match the cheeseburger sandwich served and estimate the nutrient values. The individual food items comprising the cheeseburger sandwich were cheese slice (14502010), hamburger patty (21500100), hamburger bun (51150000), tomato (74101000), ketchup (74401010), and lettuce (75113000). The energy and protein content of each food item published in the FNDDS 3.0 was found using the What's In The Foods You Eat Search Tool, 3.0. The foods were prepared in a metabolic kitchen, and trained
staff weighed each food item before and after eating to calculate the gram weight of consumption. (Six et al 2011)

The complexity of the clinical setting is mirrored in the casual food journaler’s experience in attempting to record food intake. Even though some food items revealed a 15% variation from the Standard Reference values, researchers conclude that "foods carefully selected to represent food codes in the FNDDS will translate to accurate estimates of total energy intake" (Six et al 2011). The emphasis here, then, is on seeking out foods that match the database, rather than forming a database that reflects real-world embodied eating habits.

To return to the example of the lean pocket and the homemade sandwich, the lean pocket appears to be the most expedient choice in the economy of the food journal based upon not only the ease of use, but also on caloric density: the lean pocket yields 280 calories, while the homemade sandwich contains 332.

**Table 6 Nutrition Comparisons**

<table>
<thead>
<tr>
<th></th>
<th>Lean Pocket</th>
<th>Homemade Sandwich</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calories</td>
<td>280</td>
<td>332</td>
</tr>
<tr>
<td>Fat</td>
<td>7</td>
<td>10.4</td>
</tr>
<tr>
<td>Cholesterol</td>
<td>25</td>
<td>16</td>
</tr>
<tr>
<td>Sodium</td>
<td>700</td>
<td>985</td>
</tr>
<tr>
<td>Carbs</td>
<td>31</td>
<td>38.6</td>
</tr>
<tr>
<td>Fiber</td>
<td>3</td>
<td>6.7</td>
</tr>
<tr>
<td>Protein</td>
<td>13</td>
<td>19.6</td>
</tr>
</tbody>
</table>

The table above, however, shows that while the lean pocket is lower in calories, it is also higher in cholesterol. The homemade sandwich has more protein and fiber, both of which aid in feeling full and prevent hunger from returning earlier. And even with its higher fat content, the homemade sandwich is lower in cholesterol. So while caloric data provide some information, they cannot on their own account for which meal is more healthy. Thus, in this economy of use,
pre-packaged foods create more expedient journaling experience. Measures of “health” here, then, have to do with numbers-generated data rather than the type or quality of ingredients used, the taste or flavor of the food, or the experience of preparing it.

What these food journals cannot show is the difference between the satisfaction the two lunches might provide. Which lunch tastes better? Which satisfies the eater for a longer period of time? Which was more pleasurable to prepare? Which smells more delicious? Which looks more appealing? Which has more emulsifiers and preservatives? Which provides a better sense of well-being? These are the aspects not considered in journals that quantify food based on nutritional profile.

**Clinical Validity**

Despite the fact that the logic of the food journal is the logic of nutrition science, there are questions regarding the clinical validity of using food journals for medical weight reduction. Problems with self-reporting intake and accurately calculating portion sizes dominate the discussion of issues associated with food journaling. While several studies have found that users underreport intake, 177 dieters in metro Orlando participated in a study that found “subjects tended to overestimate quantities and kcalories of foods presented suggesting that clients in a weight-control program may be ingesting less food than advised. These errors can have serious consequences, including those for initial and long-term weight loss, nutrition, program compliance and physiological satisfaction” (Mancusi 3). After studying the use of these journals, Mancusi concluded that “success at weight loss may not be significantly related to a subject’s ability at food description, quantity of portion, and ability in kcalorie estimation, as was suggested by previous studies” (Mancusi 64-65). Whether over- or under-reporting food intake,
studies consistently provide reason to question the validity of self reported food consumption and that “self-monitored intake may not reflect actual intake” (Mancusi 66).

An example of this uncertainty regarding eaters’ ability to track food intake can be gleaned from a National Public Radio news report. On Monday, March 26th 2012, Allison Aubrey reported on Dr. Beatrice Golomb’s research correlating increased chocolate consumption with decreased body mass index. In her study, Dr. Golomb asked 1,000 participants to complete a food frequency questionnaire, which inventoried frequency of eating a variety of foods, including chocolate. The participants’ height and weight were measured in order to establish body mass index. The findings are clear: people who eat chocolate frequently eat more calories, but also have a lower BMI (Golomb et al). For a five-foot tall woman, consumption of chocolate was likely to yield a five-pound lower body weight than a woman who does not regularly consume chocolate. Results were controlled for exercise, so physical activity did not account for the lower body mass in chocolate eaters. Golomb concluded that “a really important point is that it isn’t just the number of calories that matter” but also “composition of calories” (Aubrey). The radio report focused on the notion that chocolate might hold some chemical property that accounts for weight reduction and that eaters might now be able to enjoy chocolate guilt-free. The larger cultural implication, though, is that caloric monitoring is not always effective in predicting weight outcomes. The chocolate eaters ate a food associated with guilt and indulgence, ate more calories on average, and exercised no more, yet found themselves at a lower body mass index that non-chocolate eaters with lower caloric intake. This directly contradicts the energy balance equation so pervasive in nutrition science.
Rather than considering the possibility that calorie restriction does not always equal weight loss, however, scientists contacted National Public Radio to challenge aspects of the study. The next day, the report had been amended to include the following note:

And it's possible that overweight participants in the study under-reported their chocolate consumption, according to Jane Wardle of the University College London. Indeed, a lot of researchers agree that self-reported food data can be flawed. (Editor's note: This was added Tuesday 12:20 p.m. ET.) (Aubrey)

This note, while parenthetical and seemingly benign, tells a larger cultural narrative. Rather than believing the results of research published in the Archives of Internal Medicine that challenges a widely accepted (though clearly problematic in lived experience) belief about energy balance, rather than pursue the possibility that there is something mysterious, unknown, and quite magical about chocolate (or any food), rather than focus on the long-standing validity of the Food Frequency Questionnaire and its acceptance in other forms of clinical research, Dr. Wardle proposes that fat people either (1) eat more chocolate than they realize, or (2) lie about how much chocolate they consume. In this construction, we are to believe that those with lower body mass index scores are both aware of their food intake and virtuous in reporting it accurately. We cannot, however, trust overweight people to do the same.

Self-reported food consumption of fat individuals is suspect when the self-reports reflect less caloric intake than expected by medical professionals, as the “reporting of implausibly low total energy intakes has been suggested to be particularly notable amongst overweight and obese subjects” (Mela 50). The conclusion is that these individuals “suffer from substantial misimpressions and inaccurate reporting of their habitual energy intake and expenditures” (Mela 50). To complicate the situation, dieters are known to moderate eating behaviors when recording
entries into a food diary, which may lead to food journal entries that do not accurately reflect long-term habitual eating patterns. In this sense, “the phenomenon might be better characterized as ‘under-eating’, rather than ‘under-reporting’” (Mela 52). When the caloric intake reported in food diaries does not align with medical expectations for body weight and size, clinicians tend to either distrust the eater’s ability to recognize food intake or their honesty in accurately recording intake.

Clinicians are somewhat encouraged by the use of image-based journals (such as PicHealthy) as means to support better food recall for entering into a calorie-based journal. The PicHealthy app on its own would not meet clinical needs, but might serve as a memory aid for food diarists. Even the images, however, are suspect as practitioners find it “difficult to estimate food portion size from a single image without a dimensional referent” such as a checkerboard in each frame (Jia et. al. 76). In a related study of mobile image-capture journaling techniques, Daugherty et al studied adult and adolescents’ ability to remember to (1) include a fiduciary marker (a checkerboard here again) and (2) to capture all food and beverages within the photo frame. Within the research setting, participants had difficulty operating mobile devices to save pictures, had to take multiple pictures to include all food in the frame, frequently forgot the checkerboard referent, and sometimes forgot to take pictures of their meals altogether (Daugherty et al). In other studies, adolescents have been shown to be amenable to the imaging techniques and affirm that mobile technologies are easy to use (Six et al 2010).

To ameliorate this problem, Jia et al’s study proposes a camera device that can be worn like a nametag (pinned to the shirt or on a lanyard) that will record images every few seconds. All the images are stored via memory card and—most importantly—“transferred to the dietitian’s computer for further analysis” where a “software system calculates calorie and
nutrient values for each food using data available from the United States Department of Agriculture (USDA) Food and Nutrient Database for Dietary Studies (FNDDS) database” (Jia et. al 77). The error rates for software-generated portion size estimation were 12.01% using a method based on the elliptical properties of plate images and 29.01% using light-angle analysis (Jia et. al 83). While this study points to an unfortunate distrust of subjects’ own account of their food behavior (even their ability to interpret images), it also points toward a growing fascination with technological means for recording and assessing food intake that removes dietary reporting mechanisms away from the individual and directs the reporting instead to a medical professional or technology, both of which are assumed to be more reliable than the actual eater. The software’s margin of error in capturing food data is not attributed to incompetence or a desire to lie; instead, the last impact of the software’s error rate may be to underscore the truth that food intake is difficult to estimate for all people regardless of body size.

Invalid Data, Invalid Lives

With few exceptions, journals evidence the logic of the medical profession and the nutritional pyramid. The material conditions of the food consumption (this meal was costly or cheap, this meal was enjoyable or tasteless, this meal was eaten alone in my car or shared with friends) are typically not considered, unless a user creates narrative entries alongside quantified food data. Elements that would be present in a food memoir (observations of place, pleasure, and experience) are typically absent in electronic food journals.

At the same time, the medical profession’s inability to reconcile self-reported food intake with realities of body weight and size diversity amounts to a rejection of the individual dieter’s embodied experience of their eating and behaviors. A person reporting low caloric intake with high body weight is dismissed as either too stupid to accurately report intake or too dishonest to
provide trustworthy data. This rejection is not just about the diary, but about the life it represents, a life outside the understanding of weight science. In this case, the textual artifact of the food journal amounts to a subaltern life, a life described outside the language of the medical-industrial complex and outside the realm of public discussion of weight and health. The rejection of the food journal as a fat person’s accurate depiction of her own intake is a rejection of the person’s life, the person’s experience, the person herself as valid and believable.
Electronic food journals, we have established, form a rhetorical response to the medicalization of weight and the cultural conflation of weight and health. The journal is an individual response necessitated by the cultural attention to fat and the social surveillance of body size outlined in chapter two. While the medicalization of fat informs (and is informed by) uses of these journals, the electronic food journal points to an equally poignant moment in history: the advent of electronic media and the electronically-mediated life. In this chapter, the electronic food journal is situated historically alongside the Greek hypomnemata in order to demonstrate the journal’s status in relation to life writing and self-care.

**Hypomnemata and Self-Care**

In his genealogy of Greek culture, Foucault highlights the appearance of the hypomnemata as the moment when print culture birthed the practice of life writing. The appearance of chirographic culture and the ability to write allowed Greeks to begin thinking about subjectivity in new ways. Print culture enabled abstraction, the ability to record and store data, and a new relation of the “self” to chronological time (Ong). Similar to the hypomnemata, the electronic food journal stands as an exemplar of a shift in media (here to the digital) enabling new ways of thinking about self through life writing.

As used by ancient Greeks, the hypomnemata served as a journal where thoughts or experiences could be recorded for later synthesis and reflection. With the innovation of print culture, a person could record quotations from civic speeches or lectures, copy down a portion of an argument overheard, or transcribe internal dialogue, memorializing lingering questions or
fleeting thoughts. As is often the case with emerging technologies, the hypomnemata served as a new way of relating to oneself:

The point [of a copybook] is not to pursue the indescribable, not to reveal the hidden, not to say the non-said, but, on the contrary, to collect the already-said, to reassemble that which one could hear or read, and this to an end which is nothing less than the constitution of oneself. (Foucault, Reader 365)

What the hypomnemata enabled was a material representation of one’s own thoughts (or mental processes) available for later reflection and analysis. This ability to record one’s life was new for the Greeks, and these “instruments were immediately used for the constitution of a permanent relationship to oneself” wherein self-mastery and self-management took on new urgency (Foucault, Reader 363).

The copybook allowed Greeks to view themselves as governable, primarily through regulation made possible through reflection upon the recorded life. Greek self-evaluation became a practice of “exercising upon oneself as exact a mastery as that of a sovereign against whom there would no longer be revolts” (Foucault, Reader 363). Thus, the copybook served as a way to conquer oneself, to control undesirable feelings, thoughts, or inclinations: the hallmark of mind-over-matter humanist subjectivity. Writing one’s actions, thoughts, and feelings remains a popular method of self-reflection and asserting self-mastery. The USDA publication “Use SuperTracker Your Way Tip Sheet,” for example, directs users to “record daily events; identify triggers that may be associated with changes in your health behaviors and weight” (Appendix B). To transfer eating behaviors to the SuperTracker journal, then, promises the ability to gain control over one’s body and reveal information about behavior patterns that need modification.
Foucault explains that as the practices associated with *hypomnemata* gained popularity in ancient Greece, “an ethic was developing which was very explicitly oriented toward the care of oneself, reaching oneself, living with oneself, being sufficient to oneself, profiting by and enjoying oneself” (Foucault, *Reader* 365). The modern food journal acts on the same premise, as a means to establish a better relationship to one’s body, to better-understand its processes, and to enter into a symbiotic relationship between desires, foods, and healthy outcomes. We must recall that “all the so-called literature of the self—private diaries, narratives of the self, etc.—cannot be understood unless it is put into the general and very rich framework of these practices of the self” (Foucault, *Reader* 369). Food journaling, a contemporary version of Greek *hypomnemata*, offers many of the same complex promises: to teach oneself about oneself, to engage in self-mastery and self-discipline, and to ultimately enter into a better relation of care of oneself.

Much of the use of contemporary food journal is couched within the language of self-discovery. The journals reveal hidden elements of food, hidden patterns of behavior, and highlight the aspects of behavior most productive and problematic for achieving health. The journal is constructed as a place for self-revelation, a space to engage with one’s own needs and learn more about one’s own behaviors. The journal is figured as a place of caring and self-fulfillment.

In her seminal work on women’s stages of moral development, Carol Gilligan highlights the ways girls and women construe morality as issues of relationship maintenance and avoidance of harm to others. With a focus on these aspects of life, the toughest moral questions derive from scenarios where a woman must choose between self-care and responsibilities to others, between self-harm and helping others. With the focus on caring for others so explicit in women’s descriptions of moral reasoning, Gilligan poses a question about the logic of self-care:
If it is good to be responsive to people, to act in connection with others and to be careful rather than careless about people's feelings and thoughts, empathic and attentive to their lives, then why is it ‘selfish’ to respond to yourself, I would ask women, counterposing the logic of my question against the force of their self-condemnation, the readiness of their self-abnegation and self-betrayal. (Gilligan, Loc. 73-75).

Women sometimes conflate self-care with selfishness, particularly when acts of self-care impede the ability to care for others. Gilligan highlights this dilemma as a crucial component of women’s patterns of thought and reasoning, which play out in individual lives, decisions, and in larger cultural debates over issues like body-care, self-discipline, and the current cultural focus on obesity. Gilligan consistently highlights the importance of self-care as essential to care for others, noting that “in order to be able to care for another, one must first be able to care responsibly for oneself” (Gilligan, Loc. 1286-87).

To what extent, though, does food restriction, weight concern, journaling, and self-monitoring equate with self-care or move into the domain of self-harm? In the logic of care, an individual may find herself “doing what others are counting on her to do regardless of what she herself wants” (Gilligan, Loc. 772). Is there a way to bridge the gap between self-care and self-denial, self-harm? In what measure is self-denial, self-constriction a form of self-care? This is not just a question of caloric values, public health, or personal health: for women, this is an issue of morality. In Gilligan’s model, “The moral person is one who helps others; goodness is service, meeting one's obligations and responsibilities to others, if possible without sacrificing oneself” (Loc. 1140-41). The issue of self-sacrifice looms large in body management because of the larger cultural messages about what is beautiful, and healthy, and normative, and what makes the
model of a “good” parent, employee, or spouse. To find the balance between self-monitoring practices and to also value freedom, pleasure, enjoyment, *jouissance* operates precisely at the nexus where “helping others is seen to be at the price of hurting the self” (Gilligan, Loc. 1143). The essential moral question for women, then, about how to live a healthy life becomes a matter of how to care for her own body, how to care for her family and her society, without causing self-harm or engaging in too much self-sacrifice.

The leap from the self-discipline inherited in Foucault’s description of medicalization to the self-care described in Foucault’s *hypomnemata* is a complex one fraught with women’s conceptions of morality and Foucault’s own history of ignoring the gendered nature of the power relations he describes. The leap from disciplinary diet restriction to good health is similarly complex. The concepts of health, appropriate body size, and “good” health practice are deeply influenced by the distribution of power among networks of medicine, beauty, and wealth. These tensions are evident in contemporary uses of the food journal, enacted by users to record and reflect on food intake in response to social pressures to be thin and fit as described in chapter two.

**Productive Pleasure of Self-Surveillance**

To engage in food journaling and body management is productive and pleasurable in many ways. It answers a larger sociocultural call to model good citizenship and is rhetorically constructed as the right thing to do for self and others. In food journals, we see the productive pleasure of engaging the power relations operating through public policy, medical discourse, beauty norms, and media at the nexus of personal care and daily lived experience. Foucault insists that power is productive: “What makes power hold good, what makes it accepted, is simply the fact that it doesn’t only weigh on us as a force that says no, but that it traverses and
produces things, it induces pleasure, forms knowledge, produces discourse” (Foucault, *Reader* 61). Food journals produce a discourse of self-management in compliance with social norms for body size. Within the hypertextual nature of the journal, users are able to pastiche a story, act out the dilemma between self-care and self-sacrifice, and curate a life within the framework of a medicalized relationship between health, food, and eating practice.

We may not fully realize the impact of new forms of digitization—both in medical care and in modes of composition—for some time, even as they mark the spaces of contestation in individual lives and social policy. Perhaps the legacy of the digital era will be the impact it has on the physical body. While technology has “always been mapped into and onto human bodies,” mapping now interpenetrates the screen and the organs of eating and digestion (Burnett 171). Technological change allows us to take a mechanical view of the body, prompting us to want to understand how and why the body does what it does. Anne Balsamo succinctly catalogs the ways technology intervenes on the processes of the physical body:

Modern medical discourse encourages us to monitor consumption of, among other things, sugar, caffeine, salt, fat, cholesterol, nicotine, alcohol, steroids, sunlight, narcotics, barbituates, and over-the-counter medications such as aspirin. Consumption is monitored technologically through the use of such devices as electronic scales, sugar-diabetes tests, blood pressure machines, fat calipers. A range of new visualization techniques contribute to the fragmentation of the body into organs, fluids, and gene codes, which in turn promotes a self-conscious self-surveillance, whereby the body becomes an object of intense vigilance and control. (Balsamo 5)
As a progression from medicalization to population-based epidemiology to surveillance of self and others, this biopower is the axis by which we gain scientific understanding of the body, but also where we face the social requirement to monitor, discipline, and control it. Technologies like laparoscopy and computer tomography (CT scans) render the unseen hypervisible, hyperreal, and subject to scrutiny. Electronic food journals are but one place this surveillance is exercised and pleasurably enacted.

In what ways, then, can the electronic journal—with its ties to the medicalization of fat and surveillance of self and others—prove pleasurable and productive? As a result of the many pressures to perform thinness-as-health described in chapter two, an individual food journal user may engage in one of the following six circulating cultural rhetorical rationales for engaging in the practice. In each of these instances, the user is constructed as someone proactive, civically minded, and performing a necessary duty. The six common rhetorical positions are outlined below:

1. **I use the electronic food journal because I am focused on my health.**

   The electronic food journal user operating under this rhetorical mode sees evidence of weight change as evidence of improved health. Surrounded by the cultural message that “normal” weight equates with health, she engages the food journal to limit calories and move closer to a “healthy” weight. How the journal is enacted can vary: some users focused on weight reduction for health may severely restrict calories in unsustainable, unhealthy ways. Despite the health value of actual practices, however, the food journal user operating under this mode will see weight reduction as a positive affirmation of increased health and decreased risk for chronic disease. Women assume the responsibility of care—for themselves
and others—and begin to “attend to voices other than their own and to include in their judgment other points of view,” including the point of view that any decrease in body weight leads to increased health (Gilligan, Loc. 487). Here, the food journal users finds pleasure in entering caloric data, tracking weight, and choosing low-calorie foods because she believes weight reduction equates with improved health. The aspects of health left outside the purview of the electronic food journal (blood pressure readings, mental health, mood regulation) remain adjunct to the larger project of increasing health by decreasing body weight.

2. **I use the electronic food journal because it is my civic duty to monitor my weight.**

One pleasurable outcome of the journal’s impact on weight loss is the sense that a user is performing a civic duty toward her region or her nation. The United States leads the world in obesity rates with 33.8% of the population obese in 2010 (“OECD”). The “Where are you on the global fat scale?” tool explored in chapter two likewise outlines the comparative obesity among nations by ranking nations from fattest to most lean. With this global focus on obesity in competitive terms, civically minded women are called upon to try and represent their country as a model of good living and robust health. A food journaler who uses calorie-tracking to monitor her weight, then, will find satisfaction and pleasure in the sense that she is helping her country’s reputation and fighting the stereotype of the lazy, gluttonous American consumer. Coupled with the concurrent discussion of increased health care costs and the monetary impact of obesity, this journaler not only finds pleasure in reducing the weight of her nation, but is also likely to
feel as if she is contributing to her nation’s economy by monitoring her weight.

The Weight of the Nation, an HBO documentary produced in the summer of 2012, summarizes the project on its companion website with the slogan: to win, we have to lose (http://theweightofthenation.hbo.com/). This slogan appears with a map of the United States superimposed with the black-and-white faces of fat citizens. They are visually and rhetorically constructed as “the nation,” and for the nation to win (economically, politically), “we” (you, me, each individual citizen) must “lose” (weight, fat). In Part 1 of the documentary titled “Consequences,” the Director of the Center for Disease Control reinforces this point:

> The weight of the nation is not healthy and to get it healthy we’re *all* going to have to do our part. All of us have to be part of the solution to reduce obesity in this country. Otherwise, we’re going to be faced with steadily increasing healthcare costs and the lives that are lost to cancer, heart disease, diabetes, and other problems.

(“Part 1: Consequences”)

He notes elsewhere in the documentary that “the healthcare costs, not to mention the human burden, are very high” (“Part 1: Consequences”). In both instances, the cost to the larger population—the nation—are highlighted and individual human costs are listed as secondary. The overweight and obese citizen is, after all, discussed as a drain on the economy, an eventual chronic blood pressure, diabetes, and heart disease patient, and a drain also on fuel economy, public transportation, medical equipment, and public space. To keep one’s weight under control through the food journal then, results in the productive power of
contributing to the nation’s reputation, public health, and economy. To lose or control weight is one mark of the productive, efficient, contributing public citizen.

3. **I use the electronic food journal because my fat can cause ill health for others.**

Couched in the language of the epidemic, obesity is seen as a dangerous contagion. Popular news outlets have produced multiple cover stories on the prevalence of fat in friendship networks and the supposed impact of having social contact with fat friends (Rushin; Thompson). Aside from marking fat people as dangerous disease-transmitters, this couches body control as something we do not just for ourselves the nation, but also for our friends. Even more importantly for women, obesity is couched as bad for maternal and fetal health by increasing risk for pregnancy complications like gestational diabetes, high blood pressure, and preeclampsia and for causing ill health for the fetus in terms of birth defects, cognitive disorders, and autism (Krakowiak et al). Add to this the genetic component of obesity and the cultural focus on obesity in children (even babies), and women are standard-bearers for the health and body weight of their children and families. The cultural narrative assumes that if a woman can finally control her weight, she will solve the problem for future generations. And concern for children and future generations is that for which “women have both judged themselves and been judged” (Gilligan, Loc. 1209). A woman, then, is judged by her ability to solve this problem—or at least limit its effects—for her family’s future. In the current culture of the fat epidemic, being fat means putting friends, family, and colleagues at risk. To lose weight protects and cares for them; to be
thin, therefore, is the right thing to do for the sake of others. Women who believe fatness causes ill health for others will find, then, that the electronic food journal produces a sense of caring-for-others by caring-for-the-self. It is both a sacrifice, a duty, and a responsibility for women as friends and mothers to control the flow of fat within their families and social circles. These users find pleasure in thinking that controlling their own weight will lead to better health outcomes for friends and loved ones.

4. **I use the electronic food journal because being fat is selfish.**

Fatness is a problem of abundant (if poor quality) resources and overadequate food supply. In 2006, the United States produced approximately 3900 calories per person per day, nearly twice a woman’s daily recommended caloric intake (“US Food System Factsheet”). This number has likely increased since 2006 as food supply has continued to grow even during economic recession. Despite food oversupply in the United States, there is a persistent problem with hunger and malnutrition among some U.S. populations. Feeding the homeless, the elderly, the poor, and those in remote tribal and rural areas requires consistent attention from social service agencies and volunteer groups. At the same time, outside the U.S., food supply remains a dangerously persistent problem with regions of the world consistently marked by hunger, poor access to water, and malnutrition. To indulge in excess nutrition then, is to actively engage in a food system that oversupplies some while undersupplying others. There is a pressing sense of guilt about food inequality coupled with poor outlets for addressing the problem. At the same time, the larger cultural message that weight is under the realm of conscious control,
and that over-weight is a solvable problem through adequate self-discipline, to not enact appropriate self-monitoring is to put one’s own desires and pleasures before the needs of others. The “enormous power of the judgment of selfishness in women's thought” is linked explicitly to moments when a woman chooses her own happiness over someone else’s (Gilligan, Loc. 2056). For some food journal users, then, restricting one’s own intake is one way to use and consume minimal calories in order to contribute to some semblance of fair, balanced food production and consumption on the national or global scale. The reality of self-monitoring, then, results in the productive pleasure of rebalancing the distribution of resources in an imbalanced food economy.

5. **I use the electronic food journal because my body is a temple.**

Temperance and moderation are associated with many religious traditions. The Christian concept of the body as a temple derives from passages in the New Testament asking, “Do you not know that your bodies are temples of the Holy Spirit, who is in you, whom you have received from God? You are not your own; you were bought at a price. Therefore honor God with your bodies” (New International Version, 1 Cor. 6:19-20). Here, the body is the dwelling place of God or God’s love. This conception of the body may inspire some food journal users to equate weight control with religious asceticism. To control food intake is to avoid the sin of gluttony and to devote oneself to spiritual rather than hedonistic pleasures. To deny overconsumption and to focus on minimalistic eating is to direct attention to the fields of self-control and self-denial rather than self-indulgence, as seen in the religious practices of fasting for prayer or
purification. Aside from the general spiritual principles related to asceticism, there are also denominational affiliations that have recently come to bear on eating behaviors and body weight. In the United States, for example, the Southern Baptist Convention has been criticized as the fattest of all religious denominations due to its place in the south and its overreliance on potluck dinners and food-based fellowship (Cline and Ferraro; Ashley). This religious focus, then, works on two levels: for some, body-control is a matter of spiritual devotion. For others, control of body weight may be a matter of representing one’s religion (or a specific denomination) to the general public and is, therefore, a matter of religious “witness” to potential converts. A food journal user, then, might find spiritual pleasure in self-denial as she conforms to a minimalist approach to food as part of a pattern of body-denial. She might also view the control of her eating as important for representing her church or her denomination to the outside world. In this rhetorical move, a food journal user finds spiritual and religious pleasure within the space of the electronic journal.

6. **I use electronic food journals as a transgressive space to model alternative conceptions of health.**

With the persistent cultural, social, medical, and political push toward normative body weight as evidence of good health and appropriate self-care, some women whose bodies fall outside the normative standards—as either over- or under-weight—may engage the electronic food journal in an act of appeasement or subversive defiance for the benefits of themselves or medical professionals. A woman who is required by her health insurance company to diet for six months in
order to qualify for bariatric surgery may use a journal to show: “I’m eating within the guidelines as best I can, and I’m still not losing weight. Surgery is necessary for me.” A woman with disordered eating patterns might use a journal to actively seek better or normative eating patterns, to falsify information for her healthcare practitioners, or to further engage her disordered eating patterns. The anorectic, for example, may find pleasure in operating two journals: one for personal use to show minimal caloric consumption or to attempt adequate vitamin and mineral intake paired with a calorically reduced diet while maintaining a second journal with overreported intake for her therapist or doctor. Further still and equally transgressive, women focused on health as separate from weight may use the journal as a space to evidence their varied diet, intake of fruits and vegetables, or caloric balance even while their weight does not change. The user operating under this rhetorical mode of production, however, finds pleasure in coopting the genre for her own purposes and to represent food intake in a way that meets her own needs, whether aligned with or different from the recommendations of clinicians.

A person might engage one or all of these six circulating cultural rhetorical modes for engaging the self-surveillance practice of electronic food journaling. No matter why she chooses to journal, a person who moves closer to normative standards of health and beauty will enjoy positive feedback by doctors, fellow citizens, and especially within the online communities established among food journal users. It is rare that these constituencies would stop to carefully assess the dieter’s practices to make sure they’re actually life-affirming or sustainable; instead, so long as weight loss moves the journal user to a normal BMI range, she is likely to receive only
positive social support. In these and other ways, the electronic food journal engages self-monitoring and self-surveillance as a form of biopower that may be both pleasurable and productive. These common rhetorical positions frame some of the reasons and individual might participate in these activities despite their equally controlling and suppressive forces. And these journals create real-world, physically-present change alongside virtual platforms in ways that are hypertextual and hyperreal.

**Hypertextual Genre Chains**

The use of the food journal and the rhetorical modes of production that shape users’ reasons for participating in the medium are tied directly to narrative: larger cultural narratives about weight and health, and individual narratives about one’s place within the obesity epidemic and one’s commitment to global equality, family, self-care, and good citizenship. These narratives are part of complex genre chains that stand as exemplars of the cultural shift to digital composition and the ability to narrate a life in online spaces. Electronic food journals are hypertextual in their links among these complex genre chains and hyperreal in their capacity to enact material change through virtual applications.

Enacted in digital environments, electronic food journals take advantage of hypertext’s linking mechanism which allows writers to present several possible lines of thinking rather than one single linear argument. In the food journal, we see the multiplicities and variations in eating patterns as well as the multiple ways to read a food journal entry as narrative about a life, body, and behaviors. We see users engaging in and resisting medical models of health, appropriating or conforming to normative beauty standards, and crafting artifacts that demonstrate these facets of both compliance and resistance, self-discipline and self-care. The food journal becomes a way to craft a specific story about the body and the will. As in early Multi-User Dungeon (MUDs), the
food journal represents the body as “one’s own textual description, so the obese can be slender, the beautiful plain, the ‘nerdy’ sophisticated” (Turkle 12). The food journal provides an avenue for the layperson to become their own health expert, the non-trained to gain access to specialized knowledge, and for individuals to reconcile (or attempt to reconcile) larger messages about health with their own daily practices. Related to the imperative for effort toward body modification, the electronic food journal at least stands as evidence of an attempt to control one’s body size or to stake a place in the discussion of health and health behaviors. Here in the electronic food journal the physicality of the body is broken down into composite parts and behaviors—calories, fat grams, ounces of water—that represent the body’s discipline and restraint, forming a narrative of daily regimens and regulatory practices, reflecting either the body’s stubborn refusal to shed fat or mastery of the energy balance equation. No matter the weight result, the food journal forms a textual artifact of an individual person’s place and performance within this struggle.

The result is a modern inter-textual story which can be read as narrative crossing platforms and forming the contours of a life. The evidence presented in the electronic food journal shows behaviors (when used regularly) than can be traced alongside Facebook photos, check-ins for lunch dates, grocery store receipts, activities and life goals, and networks of friends and colleagues. While the cultural message “eat less, exercise more, lose weight” is pervasive and persistent, the electronic food journal and associated genre chains show precisely how this prescriptive information is lived out in daily experience. There is no one definitive narrative: not the journal itself, not the status updates, not the body’s weight data, but real health and real engagement with larger public health measures is read across these platforms in a multimodal, multifaceted, nonlinear compilation of artifacts and narrative-parcels. The electronic food journal
narrative takes shape in this network as a picture of a life lived within the modern concern for weight management, reflecting and challenging medical models of nutrition and individual experience. As part of a genre chain reinforcing the lived experience of fatness and health, the electronic food journal is both a repository of data and a linking mechanism for fleshing out the connections between medicine, community, behavior, and lived daily experience.

In many cases, food journal narratives are transformational on a corporeal level, with digital representations of food consumption and restriction (sometimes) mirrored by (often-temporary) real-world body changes. Despite the challenges with long-term weight reduction, short-term efforts at weight change do result in noticeable corporeal change. These journals, then, are powerful in both abstract/theoretical and immediately present physical ways. This may very well be the legacy of the shift to digital composing; that the “text” can be read both on-screen and in-the-flesh. The body here, of course, is a text, is a part of the genre chain, a real and physical manifestation of the efforts enacted in both physical and virtual space. These narratives are enacted on and within the body, across substrates to the computer and mobile device, and read into cultural practices.

Thus while electronic food journaling sites fragment the body and food by reducing them to numerical data within the discourse of quantification, changes represented in the journal are hyperreal and hypertextual: data represented on-screen can result in change of the corporeal form. Calorie-tracking can, quite literally, be both virtual and physical at once. The virtuality of the calorie as a concept divorced from the experiential nature of food is mirrored by the materiality of physical food and the body’s physical form. The electronic food journal and the body, then, form a hyperreal platform for recording body modification practices. This is the modern hypomnemata, the new space in which larger cultural practices of writing and recording
are enfleshed and enacted in response to notions of health, wellness, self-care, and self-discipline.
Chapter four outlined the rhetorical modes of production shaping use of the food journal and discussed the journal as a form of electronic composition. As a form of digital life writing, the electronic food journal models the mind-body-technology interactivity of extended embodiment as technology is integrated into the human form and body processes. While we can see mind-body-technology loops instantiated in the journal, Shaun Gallagher's body image/schema distinction intervenes by calling attention to the bodily processes left out of this feedback system. Here we see a rupture in mind-body-technology interactivity that locates a rupture and in embodiment theory's capacity to fully describe embodied health.

**Extended Embodiment**

The electronic food journal is not just a repository for data storage. Like the hypomnemata, it instantiates a new relation to the self and serves as a space to explore the new affordances of shifts in composing mechanisms like hypertextuality. The electronic food journal is a tool to think with. In his theory of cognitive hybridization, Andy Clark explores such tools and describes an extended model of mind that offloads information into the environment, freeing conscious thought for higher-order purposes. He writes:

> the body, by being the immediate locus of willed action, is also the gateway to intelligent offloading. The body is the primary tool for the intelligent use of

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environmental structure and acts as the mobile bridge that allows us to use the external world in ways that simplify and transform internal problem-solving. (Clark, “Pressing the Flesh” 23)

In light of modern technology, tools like PDAs, smartphones, tablets, and electronic food journals may serve as cognitive extensions (Shapiro 342). In extended embodiment, membranes and metabolic boundaries do not define the borders of cognition. What matters is not what happens within the confines of brain or larger physical body, but in the cognitive network in which we are embedded. And this cognitive network includes our tools, technologies, and physical spaces.

This larger cognitive network depends on the concept of the coupling of the body and its environment. Indeed the body and its environment are cospecified, refining one another in constant feedback loops (McGee). The body, environmental factors, and tools created for offloading intelligence form a series of affordances to perform certain actions. This is not the result of any specific contemporary phenomena, but part of the human experience that has driven technological development all along; we have minds “tailor-made to mix and match neural, bodily, and technological” substrates (Clark, “An Embodied Cognitive Science” 1). Our environments reflect the capacities of our minds; our minds are reflected in the environments we create and that create us. This phenomenon is under review when we consider, for example, how use of the internet has enabled associative thinking and short-term memory while weakening skills like longer-term data retention and deep concentration. What we experience, then, is a symbiotic co-creation between body and environment. Our tools, environments, and cognitive processes define one another.
Clark’s extended cognition forms a human-technology symbiont, his version of Donna Haraway’s cyborg, and what N. Katherine Hayles refers to as the posthuman. In each of these conceptions, the human cannot be conceived apart from its tools and technologies which shape thinking and impact action. Hayles characterizes extended embodiment through the concept of feedback loops constantly informing, reforming, and restructuring information and capacities in human-environment-technology amalgamations working together to produce consciousness. This looped mechanism—the interaction between body and environment—makes it impossible to distinguish boundaries between human, machine, biology, and silicon processors. The body-mind-environment-technology loop enacted through extended embodiment forms a cyborgian, posthuman subject equipped precisely for traversing our digital terrain.

**Food Journaling and Posthumanism**

Electronic food journaling practices form one instantiation of Hayles’ posthuman amalgam. Humans and computers are increasingly bound together, and this is evident as computer applications are introduced into our eating practices. As a site for analysis of this emerging coconstruction of our body-environment interactions, electronic food journals serve as a “harbinger of the posthuman” (Hayles, *How We Became Posthuman* 220).

As food journalers rely on on-screen visualization of metabolic processes and physiological needs to determine eating behaviors, the body and the machine enter into a feedback system; the user enters information into the journal, the journal provides a visualization of the data in light of nutrition science, and the user incorporates this information into the next eating behavior or food choice. This same practice is enacted in the use of blood pressure and glucose monitors. Gallagher posits a behavioral feedback loop where “certain things in the environment begin to matter to the agent. Meaning and interpretation come into the picture.
Conscious interpretation introduces a temporally extended ‘looping effect’” (How the Body Shapes the Mind, 239). Thus, the conscious notion of idealized body weight and intentional weight loss may be said to effectively loop with representations of food-as-calorie in electronic food journals. In this particular feedback cycle, we see how “citizens… are literally being reengineered through their interactions with computational devices” (Hayles, Electronic Literature 47). All bodies are caught up in the process of technologization; food journal users, however, serve as a visible representation of this mind-body-technology interactivity process technologization enables.

We see food journal users keying data in their smartphones at restaurants as they consider menu options, plan for future meals, decide whether to indulge in dessert, or submit a review on Yelp. We see shoppers using smartphone apps like Fooducate to scan grocery product barcodes for food health scores and recommendations for healthier substitutes. We see iPads on kitchen counters displaying recipes from allrecipes.com, we receive weekly emails with meal plans and grocery lists from emeals.com, and we constantly view creative food preparations pinned by friends on Pinterest. Technologies and the practice of planning, purchasing, preparing, and eating foods are deeply intertwined. But in the logic of posthumanism, we have to consider the ways these technologies shape our interactions with food rather than simply viewing these tools as supporting traditional patterns of behavior and experience. These tools become a part of our eating practices, our grocery and kitchen environments, and our processes for thinking about and experiencing food.

When technologies, props, or aids are reliable, automatic, accessible, and tested, these “external tools become transparent in use so that our intentions ‘flow through’ the tools to alter the world, that we feel as if we directly control the limbs, or tools, in questions, that we begin to
feel as if they are a part of us” (Clark, *Natural-Born Cyborgs* 123). And these apps, websites, devices, and tools are never really separate from us. Over time, food journal users may find that they begin to think through the logic of the journal, thinking about foods-as-represented-on-screen (an apple is 60 calories). As the practices of journaling become habituated, we rely less on the process of inputting data in the journal and begin to harbor some of that data without the technical supports of the journal. Food journal users begin to know exactly what a 1400-calorie day looks like and what a 250-calorie workout entails. The numbers become affixed to the foods and activities with and without the journal. Intentions for eating begin to flow through the journal as practices are habituated and the generic structures become models for thinking about and interacting with foods.

Human capacities allow us to create, co-opt, and develop tools that allow us to make better use of our lifeworlds. Because our foodscape—an essential part of that lifeworld—is so complex, it is not surprising that we have created tools for interpreting our food choices and assessing them based upon dominant health discourse. These tools eventually begin to dovetail back until the “object, which in and of itself is not usefully (perhaps not even intelligibly) thought of as *either cognitive or noncognitive*” becomes “a *proper part of some cognitive routine*” (Clark, *Supersizing the Mind* 87). For diarist dieters, consulting the electronic food journal mechanism is part of the habituated, cognitive routine of eating and digestion. Feedback loops in and between our bodies, foods, and electronic food journal tools characterize the very process of eating in the digital age.

**Body Image / Body Schema**

While the electronic food journal meets the criteria of mind-body-technology feedback loops in Clark’s model of extended embodiment and Hayles’ posthuman by exemplifying the
flow of information through tools and cognitive extensions, Shaun Gallagher’s body image / body schema distinction points to a rupture in this looping mechanism.

Classical humanism’s mind-body split perceives the mind as “a mental space in which I control my own thoughts and actions” (Gallagher, *How the Body Shapes the Mind* 111). Embodiment phenomenology attempts to bridge the gap between the immaterial mind and the material body by reintegrating the senses, emotions, and physical movement as the “experience” which creates subjectivity, or what counts as “me” (Clark; Damasio; Gallagher; Waskul and Vannini). To describe experience more fully, Gallagher develops a new vocabulary to describe an integrative model of embodied reality. Drawing from the work of Merleau-Ponty, Gallagher distinguishes between the body image and the body schema as separate (though integrated) parts of mind-body-environment phenomenology, interactivity, and cognition.

In popular culture, “body image” refers to an individual’s way of thinking about and assessing the qualities of her body. Women are familiar with the term and are aware that they ought to have a “positive” body image, or an appreciation of how one’s body looks. The concept of body image is culturally understood as somehow finding beauty in one’s body despite its difference from idealized notions of beauty. In embodiment philosophy, the way one pictures or thinks about her body is just one of many phenomena under review, and terms like body image and body schema are used interchangeably. Gallagher explains that within embodiment literature:

*the schema or image of the body is alternately characterized as a physiological functioning, a conscious model or mental representation, an unconscious image, a manner of organizing bodily experiences, an artificially induced reflection, a collection of thoughts, feelings, and memories, a set of objectively defined*
physical positions, a neuronal map or cortical representation, and an ideational/conceptual activity. (How the Body Shapes the Mind 22)

These different aspects of embodiment each deserve attention in their own right, yet they have been conflated and remain undifferentiated through imprecise use of vocabulary to define them. This lack of clear vocabulary confuses the discussion of what it means to be embodied.

Gallagher defines body image as “the appearance of the body in the perceptual field,” and body schema as “how the body shapes the perceptual field,” distinct but integrated aspects of embodied experience (18). Under this paradigm, “body image consists of a system of perceptions, attitudes, and beliefs pertaining to one’s own body,” whereas “a body schema is a system of sensory-motor capacities that function without awareness or the necessity of perceptual monitoring” (24). In practical terms, the body image is a conscious phenomenon, where the body schema exists below the level of consciousness. Because these functions are so closely interrelated, it is easy to understand why distinctions between them are rarely drawn.

The major distinction of body image, as is familiar in popular consciousness, is the ability to encompass perceived bodily imperfection or dissatisfaction the size, shape, or features of our bodies. Normalized beauty and body weight standards, far from being disentangled from accounts of embodiment, are tied to the body image and its social construction as a “comparison or analogy between body images—the perceptual image I have of my body and the perceptual image I have of the other’s body” (Gallagher, How the Body Shapes the Mind 81). Body size and body weight, then, are integrated into body image as part of the long-term experience of living within a body and considering it in comparison to others.

Because body image is such a familiar term, discussion of the experience of a body often returns to social standards of beauty. This account, though, draws attention away from the very
real experience of inhabiting the world in various bodily forms, and the way one interacts with her environment on a physical or physiological (and likely unconscious) level. When the body image (socially contingent) and body schema (proprioceptive and sensory) are conflated, the result is a neutralized concept that fails to account for both lived experience and differentiations of that experience based on race, gender, body size, ability, or other physical markers. In other words, the body image/schema distinction helps to explain experience in the world as both informed by physical states and bodily characteristics as well as what I think, feel, or perceive of those characteristics.

With the body schema situated as that part of embodiment incorporating proprioception, it follows that the body schema may be responsible for motor control. Gallagher, however, is careful to distinguish between pre-noetic unconscious motor control and conscious, self-aware body movement and free will. He explains that our body’s ability to operate some processes pre-noetically and without need for conscious attention frees up space for higher-order, slower processes like exercising free will or other forms of intentional action (Gallagher, “Where’s the Action?”). That we need not deliberate about the individual muscle movements necessary to digest and metabolize food is precisely what allows us to focus our attention elsewhere. We can think about calories precisely because we do not have to consciously and deliberately perform actions to metabolize micronutrients or convert food into usable energy.

Considered in light of Cartesian dualism, the body image/body schema distinction maps the new terrain of embodiment scholarship. It answers “Descartes’ error: the abyssal separation between body and mind, between the sizable, dimensioned, mechanically operated, infinitely divisible body stuff, on the one hand, and the unsizable, undimensioned, un-pushpullable, nondivisible mind stuff” on the other, by offering a linguistic space where the two are understood.
as part of a dynamic and integrated circuit (Damasio 249-50). In this model, I am both my body and my mind as I begin to understand how they work as one unified “me.” The deconstruction of Cartesian dualism coupled with a functional vocabulary for understanding fundamental aspects of embodiment lays the groundwork for continued exploration of embodied human experience. Growing from the body image/schema distinction, notions of extended embodiment begin to help us revisit mind-body-technology interactivity as body image-body schema-technology interactivity.

**Rupture**

In these feedback loops, conscious knowledge (the desire to reduce weight) is in constant interaction with pre-noetic knowledge (my body craves food). As conscious knowledge and bodily knowledge work together within a feedback system, we must ask how this notion changes when—as in the case of food journaling—conscious knowledge and bodily knowledge are situated oppositionally. To fully integrate prostheses or tools as conceived in extended embodiment requires the envelopment of the tools into one’s body schema. It is the body schema as Gallagher defines it that Clark has in mind when he writes that our adaptability depends upon “our capacity to re-create our own body image on the hoof” (*Natural-Born Cyborgs* 87). In this sense, tools like Stelarc’s third hand become part of the body schema as he extends “his own nervous system into nonbiological space, while allowing other people’s nervous systems to invade, manipulate, and parasitize aspects of his biological body” (Clark, *Natural-Born Cyborgs* 118). The body schema—acting in concert with proprioceptive feedback—stands ready to recalibrate itself with changes to the physical body or tools used to extend affordances of the body. The schema is flexible and constantly in flux to incorporate change.
What happens when the body schema (corporeal hunger, proprioception, pre-noetic physiological processing) is subjugated/dismissed/rejected/postponed/denied in response to the body image (idealized weight, social control, on-screen images, comparators of the self to others)? What is at stake for those feedback loops when the physiological self as experienced proprioceptively is projected on-screen, quantified, reduced to the calorie, and introduced as part of the process for eating, nourishment, and digestion? The pre-noetic and the conscious, the body schema and the body image, cannot ever be separated so neatly. They inform one another, reconstitute one another, and reconfigure each other within their environments. However, there are physiological facts of being (chemical processes as part of digestion, for example) that remain in effect despite the conscious or social influence on eating. That is not to say that these chemical processes are not altered (the metabolism slows when dieting, for example), but it is important to remember the risk to the body schema when engaging in food journaling as an effect of the body image.

While we may understand willed dieting as entering into a feedback mechanism with food journaling technologies, this instantiation of extended embodiment may also be understood as a rupture in the feedback and feedforward loops that normally characterize mind-body-technology interactivity. When it comes to eating and digestion, there is constant tension between the pre-noetic schema and what is pictured on-screen. Completion of the feedback cycle would require a reconstitution of those pre-noetic processes aligned with the goal of reduced body size. This might mean that controlled eating via the electronic food journal would somehow reengineer those pre-noetic intensities to physiologically reduce the desire to consume. It may be that the food journal allows the body schema (pre-noetic) and body image (conscious) eating processes and practices to reconstitute one another to an extent. However, it is unlikely that a
typical 1200-calorie weight-loss diet will influence pre-noetic processes in such a way that this reduced calorie diet is experienced bodily as sustaining, sufficient, wholesome, or fulfilling. While the “body schema [normally] allows the body actively to integrate its own positions and responses and to deal with its environment without the requirement of a reflexive conscious monitoring directed at the body,” food journaling instantiates the opposite effect (Gallagher, *How the Body Shapes the Mind* 32).

In studies analyzing the use of online weight loss tools, researchers suggest further investigation into incorporating the body schema into food journaling tools. For women, “factors related to the psychological influence of food impact utilization of online weight loss program” and cause women to discontinue use of the tools (Binks, Van Mierlo, and Edwards). Those psychological factors may well include the pre-noetic intensities Gallagher describes. While the body and its natural environment work together as in eating whole foods (an apple rather than apple-as-60-kcalories), the body and its environment as imagined in the food journaling space compete, instantiating the very essence of Cartesian dualism, the mind over matter trope. If the distinction between pre-noetic body schema and conscious body image has been so important in understanding the phenomenology of experience, we must foreground pre-noetic physiology of hunger, eating, and satiety as important aspects of eating and satiety.

**Upper and Lower Processes**

Part of the electronic food journal’s failure to account for true feedback mechanisms between the pre-noetic body schema and the conscious body image is the failed legacy of embodiment theory itself to account for the way these aspects of the self work together. Embodiment theory, though it works to reintegrate the physical form into the concept of “self,”
has been preoccupied with processes in the brain and central nervous system rather than the larger functioning of systems within and throughout the body.

When Alva Noe—who himself rejects the idea of representations of the world in the mind in favor of enactive perception rooted in the surrounding environment—laments embodiment philosophy’s inability to account for how the “brain produces consciousness,” he inadvertently reveals a continued preoccupation with the brain and central nervous system that still pervades much of embodiment theory (Noe 210). As Wilson explains, “Contemporary neuropsychology rescues only the central nervous system (and then only a small part of that) from Cartesianism; the rest of the body is readily abandoned to brute, noncognitive mechanization” (123-24). This focus on the neurological has an impact on embodiment theory’s ability to engage with feminism, for the neurological is still imaged as non-gendered, neutral space while the rest of the body is often relegated to sensory-input status incidental to the more important, higher-order functions of cognition.

Antonio Damasio’s research on emotion and reason accounts for individual difference in brain topography, yet this difference is located within the brain’s gray matter—a space imagined as entirely neutral, irrelevant to the social constraints of gendered experience. In this sense, “the extraneurological body is not simply nonneurological; more pointedly, it is noncognitive, nonconscious, nonintellectual, nonrational” (Wilson 124). Embodiment theory focuses on those parts of the body marked as neutral territory. The parts of the body marked by race, gender, size, and ability are rendered secondary to the supposedly-neutral, scientific, rational central nervous system (Mark Hansen’s work on race is a rare exception).

Other parts of the body—other systems and intensities circulating throughout the corporeal self and including those systems that define sexual difference—become the “the same
degraded, unthinking, unknowing body that is to be found in Descartes’s philosophy of mind, and on which that philosophy is founded. This is a body which can be approached via physiology, biomedicine, biophysics, microbiology, biochemistry, and so on but it remains inarticulable as a cognitive or psychical corpus” (Wilson 124). Open only to the regulation of scientific rationalism, these lower body processes remain objectified and constrained by regulatory discourses and social control. This is clear in the electronic food journal, where rationalism is still privileged over physiological intensities in the yet-mysterious processes of hunger, satiety, and digestion.

Embodiment theory has not yet accounted for the body as a full subjectivity but continues to allow the body to be broken down into component parts, systems, and mechanisms as a result of embodiment theory’s development alongside cybernetic systems; the legacy of cybernetics is seen in embodiment theory’s repeated insistence for breaking the body into component parts and operational systems (as in Clarke and Hansen’s focus on neocybernetics). In this sense, Descartes’ mind-body dualism has been “displaced and disguised through embodiment. The body itself, dichotomized between upper (brain, sight, voice) and lower (genitals, digestion, excretion, and the derogated sense of touch), becomes the material-scientific sphere of Cartesianism” (Wilson 125). Wilson attributes this desire for mechanized bodies free from sexual difference outside the constraints of flesh and femininity to “the aspirations of a peculiarly masculine logic” (Wilson 132). What we inherit is an embodiment philosophy shaped by the observational scientific rationalism Descartes himself made possible; what feminist embodiment theorists seek is to replace these remaining divisions with a more holistic, organismic approach to the full corporeal body, including the body’s sexual systems by which lived social realities are categorically assigned.
Health at Every Size: Ekstasis and the Body Image/Schema

Where the body image/schema distinction distinguishes between the proprioceptive, pre-nociose self in movement and sensation and the conscious awareness of one’s body within a field of other bodies, the conception of an ecstatic body attempts to bring both accounts into one experiential formulation. This perspective “emphasizes the active, interactive, and transactive state of ekstasis—being at once both inside and outside one’s self, body, and society and in virtue of doing so annihilating those boundaries” (Waskul and Vannini 189). This ecstatic body offers, I propose, a space to reimagine the food journal, and how it might relate to a Health At Every Size approach to eating.

As an alternative to the model of dieting and body regulation, the Health at Every Size (HAES) approach allows for embodied experiences of health and eating (Burgard 2009). The HAES approach focuses on practices associated with health (exercise, varied diet, mindfulness) rather than achieving a weight that will supposedly equate to health. Under this paradigm, a healthy weight could be any number on the scale if a person eats a varied, non-restrictive diet, participates in pleasurable movement, and pursues some sort of spiritual well-being. Under this model, weight normalizes at a healthy range when a person commits to health-affirming practices, and these practices are defined as things good for all bodies of all sizes. Movement, eating a varied diet, and enjoying the body are healthy behaviors no matter where a person falls on the body mass index.

The Health at Every Size approach was tested in a study comparing two cohorts of participants, where one cohort dieted and the other focused on principles of HAES. The dieters lost and regained weight, showed no health improvements, and demonstrated body dissatisfaction and lower self esteem at the end of the diet period. The HAES cohort lost no
weight, but improved cholesterol, activity, well-being, and sense of self control and self esteem
by the end of the control period. The study suggests that Health at Every Size is a viable
“alternative public health model” that meets the criteria for improved public health and well-
being, yet does so without focusing on weight loss (Burgard 42).

In the same way that HAES rejects a discourse of quantification for weight, it also rejects
quantification for food. Food cannot be reduced to calories or energy, but is a pleasurable force.
In this “discourse of taste, food is ‘good’ because it makes you feel good, and it nourishes the
body in immeasurable and sensory ways” (Mudry 140). Under this paradigm, “eating [should be]
based on internal cues of hunger, satiety, and appetite; individual nutritional needs; and
enjoyment, rather than on external food plans or diets” (Burgard 43). Thus, the HAES model
recognizes the multiple aspects of the self specified in Gallagher’s differentiation between body
schema and body image by acknowledging the experience of the body and the pleasures of food.

Under the Health at Every Size paradigm, eating is for pleasure and is not subject to
unnecessary regulation for body size modification. Even so, HAES practitioners recommend
using a variant of the food journal. Linda Bacon, founder of the HAES model, writes:

A journal can help you recognize hunger and fullness and identify patterns
between eating and your physical state, emotions, thoughts, and moods. These
patterns can eventually reveal how hunger and satisfaction manifest in your body.
In case the thought of a food journal conjures up bad feelings, let me alleviate
your fears. This log is not a food journal like so many diet programs use to help
you control the quantity and quality of food you eat, with the typical result of
beating yourself up. Instead, your task is to be a nonjudgemental fact-finder. The
goal is to explore whether the timing, quantity, and quality of foods you eat are
truly satisfying and to figure out how to make your eating habits more enjoyable. (Bacon 193)

The method described here rejoins the body schema and body image into the *ecstatic* body, one that is co-constitutive, integrated, and holds “the power to implode the artificial differences between body and mind, self and others, emotion and cognition, pre-reflexive and pre-linguistic sensation and linguistic reflexivity, as well as perception and action” (Waskul and Vannini 190).

The potential for experiencing the body without disruption from external comparators marks the point at which cultural imperatives for health might be replaced by individual measures of feeling strong, powerful, and energetic. The body image/schema distinction, often overlooked in the use of food journals, can be reconstituted here in a way that brings pre-noetic *and* conscious body processes into one space (as in the *ecstatic* body and in our own lived experience of our bodies) in a way that allows a co-constructive relationship between body environment without subjugating the pre-noetic processes to body discipline in the name of body size modification.

With HAES self-care practices, in a journaling technique that sustains both the body image/schema in the ecstatic body, the food journal becomes a site of mind-body-technology interactivity without the imbalance of body image over body schema and without conceiving of food solely within discourses of quantification. The food journal under this paradigm might allow for *ekstasis* where one can sense the body from within (body schema) and from without (body image) in the space of the journal by incorporating the proprioceptive self, the one that eats intuitively, by acknowledging the flows of hunger and satiety that function even below the level of consciousness. Here we reach a point of embodiment, where “the body is of the mind and the mind is of the body” (Waskul and Vannini 195). Until an electronic food journal
provides space to record this type of mechanism, it remains unreflective of embodied eating practices and becomes a site for feedback loops to be ruptured rather than realized.
CHAPTER SIX:
THE PEERS MODEL: A HEURISTIC/HEURETIC TOWARD EMBODIMENT PHILOSOPHY

The electronic food journal emerges as a genre (chapter three) in relation to medicalization, public policy, and the conflation of health and body size (chapter two). The electronic food journal stands as an exemplar of the modern practice of life writing in digital spaces and the continued tensions between self-care and self-surveillance (chapter four). As use of electronic food journals becomes habituated, the journals instantiate the mind-body-technology interactivity of extended cognition as well as current embodiment theory’s limitations in capturing the pre-noetic, outside-consciousness aspects of experience (chapter five). Here in chapter six I present the PEERS heuristic/heuretic for assessing theories and technologies of embodiment and health for their ability to access what resides in the “remainder” of current embodiment philosophy. This heuristic/heuretic can be used to evaluate existing technologies and their related genres for their ability to map true mind-body-technology interactivity and to build new theory that accounts for a fuller, more nuanced approach to understanding embodied reality and embodied health.

USDA food policy, electronic food journals, and embodiment theory share in common the difficult task of reintegrating abstract concepts with embodied experience. In their current states, all three tend to leave out pre-noetic, unconscious bodily knowledge and the physiological processes informing experiences of health, satisfaction, pleasure, and satiety. The answer, though, is not simply to pursue a scientific method to account for these marginalized aspects of experience. Within bodily experience, there will always be more to discover, more to interrogate, more to learn as our tools for inquiry develop alongside the scope of inquiry itself. And if
scientific measurement cannot probe the depths of these aspects of experience, how then can we account for these unspoken intensities in our theories, policies, and technologies?

The answer lies in growing more comfortable with a certain set of unknowns and realizing the inherent tension in scientific versus embodied knowledge. My purpose here is not to discount or to revoke the usefulness of what we know to be scientifically true. Instead, I’m calling for a method of inquiry that allows for that information to sit alongside contradictory, troublesome, unquantified, unscientific, un“proven” bodily knowledge based on experience, pleasure, intensities, and emotion. Rather than a philosophy that selects a segment of reality and subjugates the rest, we need a philosophy along the order of Ulmer’s _chora_, which accumulates rather than selects and presents multiplicities rather than restrictive distilled reality-parcels. Here, a discrete scientific unit like the calorie can be _both_ a useful measure of energy fuel _and_ a limiting, one-dimensional construct limited in its ability to describe or inhabit experience of health.

The heuristic/heuretic, explored in detail below, can be summed up as the PEERS embodiment heuristic pictured in Figure 26.
Figure 26 PEERS Embodiment Model

This model focuses on the following five characteristics of embodiment and embodied health which will be described in detail throughout the chapter:

- **P**: Pre-noetic flows of information
- **E**: Experiential, feminist knowledge production
- **E**: Ecological view of matter and networks
- **R**: the Remainder in current philosophy
- **S**: Scalability between personal and public policy

Together, this model asks five guiding questions that serve to illuminate gaps in public policies, scientific descriptions of health, technologies, and the generic forms we use to integrate them. This heuristic/heuretic can be used to think through any number of policies, procedures, or philosophies in order to bring attention back to the elements of post-Cartesian embodiment left unaddressed in current philosophies. The remainder of this chapter will discuss each facet of the model through its guiding questions and then pose applications for future research.
Guiding Question: Does this Embodiment Philosophy, Genre, or Technology Account for the Body’s Pre-noetic Processes?

As outlined in chapter five, Shaun Gallagher’s distinction between body image and body schema responds to a gap in embodiment phenomenology’s vocabulary to describe experience. His distinction calls attention to the noetic (known, conscious, willed, aware) aspects of experience and the pre-noetic (unconscious, unwilled, physiological, lower-order) processes that underlie and shape experience. A truly embodied philosophy of health should address conscious knowledge and possess tolerance for the flow of pre-noetic processes at work throughout the human body.

Merleau-Ponty, in his earliest attempts to bridge the Cartesian dualist divide, advocated for an integrated conception of the body in place of the body-as-object. What Merleau-Ponty could not have predicted was the extent to which scientific discovery would continue to reify the Cartesian quest for true self, unencumbered thought, or a seat of consciousness. Elizabeth Wilson
has pointed to the continuing interest in what she terms “upper” processes (as in brain
topography, neuroimaging, reason) versus “lower” processes (sensation, digestion). In the case
of health discourse, this amounts to a focus on the willed actions of dieters rather than the yet-
unknowable processes involving hormone intensities, enzyme action, peristalsis, and other
processes that impact the experience of eating and taking pleasure in food. Wilson’s work calls
for the empirical verification these pre-noetic, lower-order processes for the sake of a feminist
approach to embodiment.

Despite investment in obesity research, much about eating, digestion, and nutrition
remains unknown. There are, for example, at least eleven hormonal factors participating in the
regulation of food intake that interact with one another, ten of which serve to inform eaters when
they have eaten enough and should stop consuming (Nestle and Nesheim 102-3). Precisely how
those eleven hormones function below consciousness, what other factors might be involved, and
why they do not perform the same way in all bodies remains a mystery. Studying these aspects of
pre-noetic eating as Wilson suggests may increase understanding of the human body’s processes
and potentials. I am skeptical, however, that studying the pre-noetic and thereby bringing the
processes into consciousness (if not conscious control) should be the aim.

Knowing more about the pre-noetic processes of digestion is a worthwhile goal.
Atwater’s work on the calorie, for example, has contributed to a better-nourished, healthier world
population (with, of course, unforeseen consequences like carcinogens in food and
overproduction of calories per capita in industrialized nations). When we understand materiality
and the composition of our bodies and our food, we are able to address factors like
semistarvation, nutritional deficiencies, and diet quality. There are clear and measurable benefits
to bringing the unknown into consciousness and pursuing traditional scientific exploration into
the body’s functions and our environments. To discount this type of inquiry would be dangerous and regressive.

Scientific knowledge production, however, cannot catalog the full set of influences on digestion and food intake regulation or any form of bodily experience. In their response to Jessica Mudry’s work on the discourse of quantification, and in defense of the calorie as part of that discourse, Nestle and Nesheim summarize the whole of research on calorie and food intake regulation thus: “the physiological signals that govern food intake and body weight are numerous, interconnected, and overlapping. This makes them exceedingly difficult to study or understand, singly or together” (103). It’s not the complexity that makes these processes so difficult; indeed, over time, it is likely these processes will be understood in better detail. Instead, it is the reality that some bodily processes are always under the level of consciousness, outside the frame of reference, and left outside the purview of what we are able to study with scientific means.

So while knowledge about the body—its upper and lower processes—helps bridge the divide between Descartes’ mind and body by showing precisely how materiality shapes perception and how materiality informs action, pre-noetic bodily processes will always remain. We can only study those processes called into consciousness that can be named, defined, and discerned. Our minds, phenomenology has shown, work precisely by not conceiving of all available information at once, but offloading information into the environment and technologies, and by maintaining awareness of only a few processes at once. To be sentient of the pre-noetic is to be something other than human.

A truly embodied philosophy of health, then, must account for conscious knowledge and possess tolerance for the always-already existing flow of pre-noetic processes at work within and
through the human body. The Health at Every Size model introduced at the end of chapter five exemplifies such an approach by calling upon desires, innate intelligence, and intuition. To see what acknowledgement of the pre-noetic would look like in health care, we can turn to founder Linda Bacon’s radical assertion that “You don’t need food rules to guide your choices. You don’t need to fight your desires. All you need is to respect your body, by listening and responding to its signals” (73). Those signals will include the below-consciousness flow of desires and intensities, which she calls “your body’s innate intelligence” which is sufficient to “help you make good choices—and to appropriately moderate them” (Bacon 74). Opposed to relying solely on academic research to guide eating practices, Bacon points toward intuition as the foundational mechanism for eating well (75).

To move toward a philosophy of embodiment and health that accounts for the pre-noetic, then, requires that we must avoid assumptions and explanations that assert any body process is fully and completely understood. Any body process assumed to be fully understood without explicitly stating the existence of below-consciousness intensities is likely to become a place of contestation and mind-body dualism. We must avoid such explanations and always return to the truth of pre-noetic flows, acknowledging those realities as influential actors shaping experience and decision-making.

In practical terms within the obesity epidemic, this return to the pre-noetic means that an individual eater is not weak, undisciplined, inadequate, or stupid for feeling hungry or eating to achieve satiety. To work against the pre-noetic intensities that we do not understand, that vary between people and within a person across time, is to deny part of human experience.

For medical practitioners, acknowledgment of the pre-noetic means admitting that not all health experience is within the purview of medicine. Even as we learn more about pre-noetic,
below-consciousness processes, there will remain inaccessible elements of human desire, behavior, and experience. Medicine performs an important role in preserving and restoring human health, but must also appreciate its own limits in addressing the full range of health experience.

**Figure 28 PEERS Model E: Experiential**

**E: Experiential**

*Guiding Question: Does this Embodiment Philosophy, Genre, or Technology Engage in Experiential, Feminist Knowledge Production?*

An embodiment philosophy that acknowledges the presence and influence of pre-noetic processes also works against the gendered history of scientific rationality emerging from Cartesian duality. The pre-noetic, because it exists outside quantification and rationality, is the space where women’s experience has been relegated. Embodiment philosophy has yet to deliver on its potential to work against binary, emphasize lived experience and perception, or focus on the body-subject (Grosz 94). In her work on women’s moral development, Carol Gilligan
focuses explicitly on gender difference, a move that is always controversial as women claim equality with men in capabilities and capacities. The differences between sexes Gilligan locates, however, are important for elucidating the ways in which men’s experience has been taken to stand for all experience, and the ways women’s experience is thereby unaccounted for in psychology and philosophy. She notes that discovery of gender difference occurs when theories formerly considered to be sexually neutral in their scientific objectivity are found instead to reflect a consistent observational and evaluative bias. Then the presumed neutrality of science, like that of language itself, gives way to the recognition that the categories of knowledge are human constructions (Gilligan, Loc. 334-37).

The gendered history of knowledge production in psychology, philosophy, and medicine continue to bear weight on women’s experiences of body management and body size control.

Feminism has long privileged women’s experience and story telling as a form of knowledge production. The sciences, however, treat accounts of lived experience as unverified, irrational, unsubstantiated narrative standing outside the discourse of proofs and facts. In health discourse, for example, we’ve seen the impact of the energy-balance equation that pits the scientific reality of caloric intake and expenditure against the experiential qualities of taste, environments, experience, cost, pleasure, fulfillment, or joy and the impacts of these qualities on experiences of health and well-being. The dissonance between scientific rationalism and embodied experience echoes of adolescent girls’ “self-doubt and the dawning of the realization, no matter how fleeting, that womanhood will require a dissociative split between experience and what is generally taken to be reality” (Gilligan, Loc. 175-76). An embodiment philosophy that accounts for the pre-noetic, though, would consider these qualitative aspects of eating as a
dynamic and influential partner in the part of experience we can identify, and that a person’s knowledge of their own body’s hunger and intensities might very well stand against or outside the discourse of rationality or scientific energy balance. To privilege this bodily knowledge as valuable and useful, then, is to take a feminist approach to knowledge production where the personal informs, shapes, and partners with the scientific.

In a feminist approach to embodiment philosophy, lived experience is not outside social, political, historical forces and cannot provide an outside (or any one authoritative) vantage point. Lived experience is situated, contextual, variable, and reliant on Haraway’s concept of the modest witness: always influenced by factors that shape vantage point and always in need of cross-collaboration to form and express the contours of multiple realities. Experience is taken seriously in this account of perception, and is not considered untrustworthy but rather as worthy of investigation and reflection. The goal of a focus on feminist knowledge production is not to reverse the privilege of scientific rationalism to then privilege women’s experience, but to instead “provide a basis upon which to generate new theory, potentially yielding a more encompassing view of the lives of both of the sexes” (Gilligan, Loc. 324). Donna Haraway refers to this move as a successor science that “offers a more adequate, richer, better account of a world” (187). She identifies the workings of both science and constructionism as rhetorical moves, moves with motives, histories, and limitations. She works toward building “simultaneously an account of radical historical contingency for all knowledge claims… a critical practice for recognizing our own ‘semiotic technologies’ for making meanings, and a no-nonsense commitment to faithful accounts of a ‘real’ world” (Haraway 187). The interplay between the many possible viewpoints is what serves to outline the contours of complex realities.
Here, the looping mechanism of Merleau-Pointy’s sensory perception may find a voice in the looping conversions between personal experience and scientific rationalism.

To engage this aspect of embodied health philosophy, then, means to question any technology or philosophy that relies solely on the realm of quantifiable, measurable aspects of scientific rationality. To rely solely on the quantifiable and concrete necessarily silences alternative modes of knowledge production. Scientific rationality is most useful when it is corroborated with lived, embodied experience narrated in the lives of individual citizens. The contours of reality emerge at the cross-points between scientific reasoning and multiple (and even contradictory) accounts of lived experience.
Guiding Question: Does this Embodiment Philosophy, Genre, or Technology Take an Ecological View of Health, Attributing the Concept of Life to all Matter?

If we are to imagine an embodiment philosophy that can be applied to experiences of health, we might ask: health for whom (self/other)? If a woman’s ethic of care requires attention to both self-care and care for others, even when care for others might result in self-sacrifice, where do we locate a boundary for where concern should lie in the life of an individual? Issues of technology contribute to this dilemma, prompting us to consider where subjectivity begins and ends in social and technological networks. Additionally, how do we define good health in the framework of extended embodiment where mind-body-technology interactivity characterizes the human?

The concept of the self resonates deeply with related issues of gender and self-other relationships, where it can be said “male gender identity is threatened by intimacy while female
gender identity is threatened by separation. Thus males tend to have difficulty with relationships, while females tend to have problems with individuation” (Gilligan, Loc. 374-75). In an ecological view of embodied health, however, self/other, separation/individuation can work in concert, exist interdependently, and more fully represent the networks of health and life embedded in the world.

To follow the projection of embodiment philosophy from Cartesian dualism to extended embodiment requires, of course, a new concept of the “self” and subjectivity. Descartes’ philosophy seated “self” in the rational mind. The legacy of Merleau-Ponty’s embodiment philosophy has thus far been to relocate the core self in experiences anchored in the brain and the central nervous system. Andy Clark’s more recent extended embodiment locates the experience—and therefore the self—in mind-body-technology feedback loops outside the skin and into the environment. This “posthuman” self, which exists outside the boundary of flesh, incorporates tools, matter, material, motion, and energy from its surroundings as parts of “self” and experience.

In an embodied philosophy of health, this would require us to look at concepts like “food” and “fat” differently. Food becomes a dynamic, living, active partner in the production and experience of health. All food—food constructed culturally or medically as good or bad, health-promoting or health-prohibitive—provides nutrition and energy. All food is embedded in an ecology of life, whether grounded in the earth or many-times removed. Fat becomes an engaged actant in the experience of hunger. Fat, after all, deploys mechanisms to ensure its own survival.

An embodiment philosophy that truly considers interactivity, then, would have to account for health of all organisms and on multiple levels within ecosystems. In the discourse of
quantification, for example, I have shown that a frozen processed food item like a lean pocket is more expedient in the economy of use of the food journal as compared to a home-prepared ham and cheese sandwich. To consider interactivity on all levels of life, however, we would need to know more about the experience of the animals whose flesh (ham) and excretions (milk for cheese) are harvested in the process of producing these meal items. If life extends outside my body, and if I interact with environmental forces, then my experience isn’t the only one to count. I become an ecosystem and extend into an ecosystem.

**Noosphere**

Because we do not yet have an account of extended consciousness available for scientific study, I turn to Greg Bear’s fictional exploration of the noosphere as an example of this interactivity across multiple levels of life. In his novel *Blood Music*, Bear focuses on human experience through the notion of a network where “in almost every living cell there was already a functioning computer with a huge memory” (Bear 18). Bear’s noocytes (mind-cells) represent distributed systemic knowledge, where the collective replaces the individual *I*. Bear’s noosphere ultimately leads to a notion of collective rather than individual identity.

Within the novel, protagonist Bernard develops cells and smuggles them out of the laboratory by injecting them into his body where they thrive and evolve into self-aware, sentient units. The noocytes, regarding Bernard as a “supreme command cluster,” don’t know what to make of his request to speak with an individual cell, “Not just the team or research group. One of you, acting alone” (Bear 188). The noocytes respond, “We have studied INDIVIDUAL in your conception. We do not fit the word” (Bear 188). They offer an alternate conception of what comprises the individual, saying: “Perhaps this is what you mean by INDIVIDUAL… cells cluster for basic structuring; each cluster is the smallest INDIVIDUAL. … What you think of as
INDIVIDUAL may be spread through the ‘totality’” (Bear 188-89). The individual spread throughout the totality marks a transition from humanistic concerns with I to a larger, more integrated circuit of combined human cognition. Within this paradigm, what had been conceived as the I of humanism is revealed as a hierarchy of interdependent smaller networks of conscious cells.

Bernard, in his desire to communicate with the noocytes but also retain his individual identity, presses this matter. They explain, “You already are one of us. We have encoded parts of you into many teams for processing. We can encode your PERSONALITY and complete the loop” (Bear 200). Bernard is assured that even his personality can be encoded, that his essential essence—here figured as personality and soul—will not be lost in translation. The noocytes add, “Your SOUL is already encoded, Bernard. We will not initiate unless we receive permission from all your mental fragments” (Bear 200). In this move, the noocytes remind Bernard that he is already fragmented, that his selfhood is already dependent upon a cohesion among disparate units. To act, however, the noocytes require unanimous consent from Bernard’s various components of the self.

Bernard chooses to enter the realm of the noosphere and experiences thought on a cellular level. He is “crossing an interface. He is encoded” (Bear 217). Information is no longer limited only to sensory perception, but is now represented in combined, collective experience. Bernard recalls, “I remembered stuff I hadn’t even lived through. It was like I was talking on the phone with zillions of brilliant people, all friendly, all cooperating” (Bear 227). Bear’s emphasis on cooperation and unanimity among the various parts represents a collective unlike those experienced among human actors; the cells, in sharing knowledge and information, reach the same conclusions and act cohesively. Bernard realizes that in this data transmission, in this
collective, “if I die here, now, there’s hundreds of others tuned into me, ready to become me, and I don’t die at all. I just lose this particular me” (Bear 227). Bernard’s final diary entry notes, “They have duplicated me a million times over. Which of me writes this? I do not know. There is no longer an original” (Bear 260). Bernard experiences a complete departure from the individual humanist subject as he enters the noosphere.

Entering the noosphere means parting with the humanist tradition of the individual self and embracing a collective consciousness and identity. Within the noosphere, Bear offers a version of the human "seen as part of a distributed system" that stretches beyond the cognitive awareness or imaginings of the individual whose consciousness is accessed through collective thought (Hayles 290). Operating on the metaphor of replication of computer and genetic code, the Self of the noosphere is multiple, fragmented, and shifting. In its consideration of embodied cognition, collective consciousness, and the disappearance of the individual, Blood Music presents a picture of posthuman collective consciousness and identity spread across boundaries of the Cartesian individual human subject.

The noosphere is a science fiction representation of an embodiment philosophy that places intelligence at the cellular level. This shift functions to represent the environment and networked systems as co-creators of experience, and the rational “self” as a limited construct. Here, cells are themselves intelligent creatures. This ethic of cellular intelligence is shared by the political project of fat acceptance by insisting that bodily experience produces its own knowledge, that the body—and in fact adipocytes—are intelligent, and that knowledge is produced in and through the physical body.

While we may never have conversation with cells the way Bernard does, the noosphere serves as a metaphor for the reality of extended embodiment—cognition is not tied entirely to
conscious rationality, but to the flow of information through and across substrates, all of which are forms of living matter and vibrant materiality. An embodied philosophy of health, therefore, must acknowledge the *aliveness* of all things: machines, people, and environments are made of the same particles and create an intelligent ecosystem. The Cartesian divide between mind/matter, self/object dissipates under this paradigm.

**Figure 30 PEERS Model R: Remainder**

**R: Remainder**

*Guiding Question: Does this Embodiment Philosophy, Genre, or Technology Assign Contradictions Between Philosophy and Experience to Individuals or to the Remainder?*

If embodiment philosophy accounts for the pre-noetic and allows for feminist modes of knowledge-production in ecology that accounts for the aliveness of all matter, how will a theory of embodiment withstand contradiction of experiences or contradictory explanations of shared experience? In the discourse of public health, we see this contradiction at work in, for example, body mass index norms and the lived, embodied experience of citizens. Members of the National
Weight Control Registry report normal body weights (or weights closer to normal after massive weight loss), but they also report net caloric consumption of just 900 calories per day, which stands in contrast to the USDA recommendation for women to eat nearly twice that much (Solovay and Wann 39). Rather than looking toward individual eaters as anomalies or outliers (of whom there seem to be many), we can imagine what might happen if we asked “what is inadequate about our understanding of energy balance?” rather than looking to find fault in those whose bodies contradict its regulatory premise.

The energy-balance equation for weight regulation is, on the whole, largely proven to be an accurate predictor of body weight with some variation and with few exceptions. However, in food journals collected by dietitians, nutritionists, and researchers, self-reported calorie intake is inconsistent with body weight outcomes. If users eat what they say they eat, body weight should be lower based upon energy-balance calculations. In chapter three I outlined how this is taken to mean that eaters are either unwilling or unable to accurately report food intake. Factors include:

- Asking subjects to report eating changes eating behavior (whether in a food journal or in duplicate meal analysis)
- Subjects forget what they ate, especially in terms of snacks, alcohol, and serving sizes.
- Subjects underestimate portions
- Subjects underreport foods perceived as unhealthy and overreport foods perceived as healthy
- Food intake varies across days, weeks, seasons, and occasions

For all of these reasons, self-reported food intake is said to be underestimated between 10 and 45 percent, with “women, people who are overweight, and those of low income and education status” underreporting by the widest margins (Nestle and Nesheim 87).
A scientific approach, focused on the accuracy and completeness of the energy balance equation, focuses on this “underreporting” and “misrepresentation” as a problem with the subject. The subject’s understanding of food and caloric data is inaccurate or invalid. The subject is insufficient for performing within the behavioral constraints of the energy balance equation and fat storage is the consequence.

Fat activists, however, have described this experience in their own ways and regularly report food log data falling below prescribed caloric totals. Because the impact of the energy balance equation results in

‘eating plans’ necessarily devised with a particular type of scientized input, in which culturally sensitive understandings of food, empathy, and intuition carry little weight. This devaluing of non-legitimated nutritional beliefs… normalizes distrust of appetite and body signals, it feeds eating dysregulation. (Solovay and Wann 101)

We see here in his excerpt the tension between contradiction in scientifically-derived eating plans and non-scientific realms like empathy and intuition which, of course, exist completely outside the discourse of health that necessitates food journals.

How does an embodiment philosophy deal with these contradictions? It is inappropriate to discount energy balance as a mode of discovery about food, eating, and health. It is also inappropriate to discount appetite, body signals, empathy, and intuition as parts of that same discovery.

An embodied philosophy of health would turn the question around. Instead of asking “how can we reconcile energy balance with bodily experience of hunger?,” to discover why some people are eating “too much” or to discover why people are reporting “too little” intake, an
emergent philosophy asks: “what is left in the remainder between the energy balance equation and accounts of hunger and satisfaction? What do both discourses exclude? Where do they fail to overlap?” This question assumes there is something incomplete in existing concepts of energy balance or hunger rather than assuming there is something wrong with an individual eater. In taking this turn, an embodiment philosophy averts the question: which side is right? And can instead ask, “what about this concept of health and weight is inadequate to describe experience?” To better-describe experience, then, would mean revisiting existing models in order to account for the contradictory experiences of people outside normative standards of body weight or who experience hunger and satiety differently. This turn, in short, pushes back on concepts rather than on people. Here, we would ask “what is inadequate in our understanding of weight and health?” rather than “who is unhealthy?”
Figure 31 PEERS Model S: Scalable

S: Scalable

**Guiding Question: Is this Embodiment Philosophy, Genre, or Technology Scalable from Personal Experience to Public Policy?**

An embodiment philosophy that accounts for the aliveness of all matter and for the production of knowledge through bodily experience already works to break down the personal/political boundaries of the liberal humanist subject tradition. Any embodied philosophy of health ought to ring true in personal experience and work as matter of larger social policy. The issue of scale is a necessary one because it tugs precisely where we often find breakdowns in current philosophies of embodiment, technology, and health. Scalability serves to reinforce the goal of ecological views of matter and the situatedness of feminist knowledge production by questioning whether any policy or philosophy can answer population-level problems in ways that are meaningful and useful to an individual.
The public health debate over obesity demonstrates the complexity related to issues of scalability. Fat activists have worked to demonstrate that (1) energy balance formulas are not effective at predicting weight for every body, (2) medical constructions of quantified health are constructed rather than absolute, and (3) “health is a condition of being involved, of being in the world, of being together with one's fellow human beings, of active and rewarding engagement with one's everyday tasks” (Gilman 6). These points are based on lived experience of fatness, personal reactions to policy, and embodied perceptions of health. To scale these up to public policy, though, leaves almost no room for guidelines, instructions, measures, or indices. The goal of public policy is not to quantify health for its own sake, but to act upon correlations and factors that are real and present, even if not applicable for every person in every case.

On the other hand, the medical complex’s ability to collect and store data about body size, morbidity, and mortality cannot easily scale down to individual human behaviors precisely because aggregate data is not predictive of personal outcomes for every individual, because it does not account for individual experiences and preferences, and because it does not take into account behaviors associated with culture, emotion, and pleasure.

The problem of scalability is a complex one. However, an embodiment philosophy of health must, on a broad public-policy scale, allow for the personal, variable, experiential accounts of and approaches to health and wellness. This would require policy that is descriptive rather than prescriptive. Most importantly, a scalable health policy would encourage behaviors or activities useful for all people, at all measures of health, regardless of body size. Because physical activity is good for people of all sizes and because access to quality, affordable food is healthy for people of all sizes, governmental policies might do better to focus on building accessible playgrounds, sponsoring city-wide sports leagues for children and adults, providing
safe walkways and bike paths, or providing subsidies for health-promoting foods. The ways individuals might engage these public parks and food resources will, of course, differ: but the goal would be to encourage behaviors that are healthy for all people, in any amount, regardless of body size or fat distribution. The corollary to this type of social action would include a grassroots movement to encourage people with all body types to participate joyfully in these activities.

A public policy that promoted activity for people of all body types and sizes might closely model the Health at Every Size paradigm, even if health experts may not fully adopt the view that a person can, in fact, be healthy in the obese body weight range. We know, however, that inactivity and lack of exercise puts citizens of all body sizes at risk. In The Weight of the Nation report, physicians identify seven factors for good cardiovascular health (of which healthy body weight is one factor) and estimate that only one percent of the United States population actually meets the criteria for a healthy cardiovascular system (“Part 1: Consequences”). To build a truly scalable public policy, then, means that focusing on obesity misses out on the opportunity to promote health for all. Since even modest weight reduction leads to increased health outcomes, the standard by which we measure health could become activity, enjoyment, and pleasurable movement rather than a range of acceptable body weights. Under this conception, public policy could account for the diversity within its population rather than trying to point policy toward citizens operating outside normative standards. What is healthy for fat people is healthy for all people.

Applications of the PEERS Heuristic/Heuretic Beyond Fat and Body Size

Like the Greek hypomnemata, the electronic food journal serves as an artifact representing a cultural moment. For us, this cultural moment is defined by a new reliance on
digital technologies and a public health policy that pits scientific data against the lived realities and embodied experiences of real-world eaters and technology users. At the same time that we try to figure out subjectivity in a digitized, scientific era, we also have an interdisciplinary movement to build embodiment philosophy that works past gaps in Cartesian mind-body dualism in order to better understand the phenomenology of experience and cognition.

The PEERS model does not provide a definitive answer for the questions Merleau-Ponty posed. It does not answer the largest looming question in phenomenological research: how, exactly, is experience enacted? It does not tell us how to finally address body weight or how to design a productive and capable public health policy. What the PEERS heuristic/heuretic can do is probe specifically at areas in embodiment philosophy and technological interactivity that we cannot currently understand due to gaps in our philosophies.

The model was built by way of public health policy and the cultural focus on obesity, but can be useful for assessing the ability of any policy, technology, genre, or theory to address the gaps it uncovers. We could use the PEERS model to question certain medical procedures (bariatric surgery, artificial limbs). The PEERS model can be used to assess whether certain technologies are immersive enough to create or mirror embodied experience (3- and 4-D environments, virtual realities). The model can be used to question existing modes of discourse about experience or existing philosophies about embodiment (the concept of the feedback mechanism, the ecstatic body). This model even serves as a way to interrogate the ways genres and genre chains enact or avoid an experience of embodiment or health (uses of diaries, uses of data-capture technologies).

By pursuing the five lines of inquiry outlined in this heuristic/heuretic, we are able to access what lies in the “remainder” of current embodiment philosophy. We can apply this
method to evaluate existing theories and technologies for their ability to map true mind-body-technology interactivity by asking:

1. Does this embodiment philosophy, genre, or technology account for the body’s pre-noetic processes?
2. Does this embodiment philosophy, genre, or technology engage in experiential, feminist knowledge production?
3. Does this embodiment philosophy, genre, or technology take an ecological view of health, attributing the concept of life to all matter?
4. Does this embodiment philosophy, genre, or technology assign contradictions between philosophy and experience to individuals or to the remainder?
5. Is this embodiment philosophy, genre, or technology scalable from personal experience to public policy?

These pathways allow us to more fully pursue embodiment-focused technologies and philosophies by defining the contours of embodied cognition. The five questions presented here address concepts largely underdeveloped in the embodiment literature from neurophenomenology and medical science to sociology and public policy.

The challenge is to form philosophy of embodiment as our experiences of embodiment rapidly coevolve with our natural and built environments and our tools and technologies. We are engaged in precisely the type of thinking and invention we are good at—creating representations “on the huff” as we go, engaging new concepts as they become necessary to our aims. This is an age of new requirements for the body and the mind. The challenge is to adapt conscientiously and to build theory that equips us to better define and address cultural problems.

In the same way that discussions and technologies related to weight and health have shaped my analysis of embodiment theory at large, I hope to see practitioners and citizens engaged in the pursuit of health lead the charge in working out a truly embodied philosophy of being. Embodiment philosophy is pioneering new ways of understanding subjectivity in light of the affordances provided by digital technologies. In our evolving lifeworlds, we have the
capacity to reach beyond the legacy of Cartesian dualism and to map an experiential, qualitative, emergent philosophy of mind and human interaction.
APPENDIX A:
USDA SUPER TRACKER PRESS RELEASE
USDA Launches New Online Nutrition SuperTracker in Time for Those Healthy New Year Resolutions

New Web Tool Designed to Help Americans Make Healthy Food and Physical Activity Choices

WASHINGTON, Dec. 22, 2011 – Just in time to help Americans keep their New Year’s resolutions by making healthy food and physical activity choices, Agriculture Secretary Tom Vilsack today released USDA’s new nutrition SuperTracker. The SuperTracker is a comprehensive, state-of-the-art resource available at ChooseMyPlate.gov designed to assist individuals as they make changes in their life to reduce their risk of chronic disease and maintain a healthy weight. Release of this new web tool comes as USDA highlights the second in a series of themed consumer messages supporting the MyPlate icon — Enjoy Your Food, But Eat Less — that USDA is promoting the next three months in conjunction with more than 5,000 organizations participating in the MyPlate Nutrition Communicators Network.

“Overcoming the health and nutrition challenges we face as a nation is critical and the SuperTracker provides consumers with an assortment of tools to just that,” said Vilsack. “This easy-to-use website will help Americans at all stages of life improve their overall health and well-being as they input dietary and physical activity choices into the tool. During the holiday season we are surrounded by good food and this is a perfect time to Enjoy Your Food, But Eat Less.”

The SuperTracker is a visually appealing, comprehensive, state-of-the-art resource available at ChooseMyPlate.gov. It is designed to assist individuals as they make changes in their life to reduce their risk of chronic disease and maintain a healthy weight. Consumers can access this free, on-line tool at anytime and can choose a variety of features to support nutrition and physical activity goals. SuperTracker offers consumers the ability to:

- Personalize recommendations for what and how much to eat and amount of physical activity.
- Track foods and physical activity from an expanded database of foods and physical activities.
- **Customize features** such as goal setting, virtual coaching, weight tracking and journaling.
- **Measure progress** with comprehensive reports ranging from a simple meal summary to in-depth analysis of food groups and nutrient intake over time.
- **Operationalize** the 2008 Physical Activity Guidelines.
- **Support family and friends** by adding their individual profiles.

The *SuperTracker* complements FirstLady Michelle Obama’s *Let’s Move!* initiative and provides practical information to help individuals, health professionals, nutrition educators, and consumers build healthier diets. As Americans are experiencing epidemic rates of overweight and obesity, the online resources and tools available at [ChooseMyPlate.gov](http://www.choosemyplate.gov) can empower people to make healthier food and physical activity choices for themselves, their families, and their children.

Additional new **consumer messages** in the months to come will include *Drink Water Instead of Sugary Drinks, Make at Least Half Your Grains Whole Grains*, and *Avoid Oversized Portions*. USDA and its MyPlate [Nutrition Communicators Network](http://www.choosemyplate.gov) partners will find innovative ways to deliver the easy-to-adopt how-tos for these messages to empower consumers to make healthier food choices.

Originally identified in the Child Obesity Task Force report which noted that simple, actionable advice for consumers is needed, *MyPlate* replaced the *MyPyramid* image as the government’s primary food group symbol as an easy-to-understand visual cue to help consumers adopt healthy eating habits consistent with the *2010 Dietary Guidelines for Americans*.

[ChooseMyPlate.gov](http://www.choosemyplate.gov) provides practical information to individuals, health professionals, nutrition educators, and the food industry to help consumers build healthier diets with resources and tools for dietary assessment, nutrition education, and other user-friendly nutrition information. As Americans are experiencing epidemic rates of overweight and obesity, the online resources and tools can empower people to make healthier food choices for themselves, their families, and their children.

**Other Associated Resources:** [Dietary Guidelines.gov](http://www.dietaryguidelines.gov); [ChooseMyPlate.gov](http://www.choosemyplate.gov); [LetsMove.gov](http://www.letsmove.gov)

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APPENDIX B:
USDA SUPER TRACKER TIP SHEET
10 tips use SuperTracker your way

Nutrition Education Series

10 tips to get started

SuperTracker is an online tool where you can get a personalized nutrition and activity plan. Track what you eat and your activities to see how they stack up, and get tips and support to help you make healthy choices.

1 create a profile
Enter information about yourself on the Create Profile page to get a personal calorie limit and food plan; register to save your data and access it any time.

2 compare foods
Check out Food-A-Pedia to look up nutrition info for over 8,000 foods and compare foods side by side.

3 get your plan
View My Plan to see your daily food group targets—what and how much to eat within your calorie allowance.

4 track your foods and activities
Use Food Tracker and Physical Activity Tracker to search from a database of over 8,000 foods and nearly 800 physical activities to see how your daily choices stack up against your plan; save favorites and copy for easy entry.

5 build a combo
Try My Combo to link and save foods that you typically eat together, so you can add them to meals with one click.

6 run a report
Go to My Reports to measure progress; choose from six reports that range from a simple meal summary to an in-depth analysis of food group and nutrient intakes over time.

7 set a goal
Explore My Top 5 Goals to choose up to five personal goals that you want to achieve. Sign up for My Coach Center to get tips and support as you work toward your goals.

8 track your weight
Visit My Weight Manager to enter your weight and track progress over time; compare your weight history to trends in your calorie intake and physical activity.

9 record a journal entry
Use My Journal to record daily events; identify triggers that may be associated with changes in your health behaviors and weight.

10 refer a friend!
Tell your friends and family about SuperTracker; help them get started today.

Go to www.ChooseMyPlate.gov for more information.
APPENDIX C:
THE STORY OF FARMER MUNCH
The Story of Farmer Munch

There once was a Farmer,  
and Munch was his name,  
Fruit and veg was his thing,  
5 a day was his aim.  
He got plenty of exercise,  
fresh air and sleep,  
And had bountiful fields  
and prize-winning sheep.

But Candy his wife  
would eat sweeties and snacks,  
And Chips his old dog  
would forever relax.  
And while over the years  
Farmer Munch kept his figure,  
His wife and his dog  
would only get bigger!

Oh how Farmer Munch  
did long for a way,  
To help them remember  
to eat 5 a day.  
And then one fine day  
while eating his lunch,  
A fantastic idea!  
It was more than a hunch…

For Candy an iPhone…  
an iPad for Chips.  
“To the App Store!” he said,  
“…and farewell to those hips!”  
And from that moment on,  
’til this very day,  
They never forgot  
to Munch-5-a-day!

The End.
REFERENCES


