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Qualifying Exam

Abstract: The Digital Patient

My dissertation addresses how the artifacts produced by medical imaging tools have created a digital patient that is replacing the corporal patient and how this affects our beliefs about illness and the human, with a focus shifting from the exterior to the interior body and from the whole persona to organ systems, anatomy, and physiology. Our bodies are moving outside of themselves. In this context, digitization represents the culmination of objectivation: the physical body falls under the observation of the medical imaging technologies, while the digital body ultimately serves an object of observation by the physician. I analyze images produced by medical imaging technologies, along with their accompanying text records, and evaluate that content outside of literal meanings in terms of medical usage. The project will use a rhetorical approach to examine the artifacts produced by medical technologies and the processes by which they came into existence. Here, the artifacts are not considered static objects,

but rather part of a complex system of communication between physician and patient that create new meaning in different contexts, both in whole and in part.

This project includes a review of empirical evidence related to the medical encounter and digital imaging, a historical review that defines key moments in the evolution of visual medical technologies, interviews with patients and physicians, and fieldwork in operating and exam rooms that helps illuminate the true nature of medical encounters. At the heart of this project is actual medical images and records – texts – that provide a basis for understanding how the imaging equipment – technologies – communicate to physicians and patients a better understanding of the body. The methodology for this analysis of medical images and texts combines fragmentation, collage, juxtaposition, and interpretation based on surrealist, theatre, and literary theories, and incorporates concepts from the medical humanities field. I dissect the artifacts – much like the technologies visually dissect the body – and reconstitute them in a way that produces new meaning. Using a unique combination of methodologies offers a fresh way of understanding the artifacts generated by medical technologies and their effect on people.

Surrealist techniques, such as cut-up, collage, cubism, allow the introduction of art and literature into scientific inquiry, which help produce new meanings from the medical artifacts. These new understandings can inform the medical field and increase our understanding of what the patient expects from medicine and physicians.

Questions about the validity of certain medical processes, roles, and beliefs about medical care are not typically addressed outside of scientifically-based research, and the introduction of these literary methods to medicine offers a useful way of exploring the issues. Breton finds the most value in the arbitrary virtue of surrealist tools and sees them as a way of freeing the imagination (38). He proposes that these tools make new meaning from existing texts and images. Breton feels that reality is more than it seems and that: "Existence is elsewhere" (47).

By contrast, Brecht wants to remind us of reality and that the nature of reality is economic. He used techniques in the theater to remind the audience that they were watching a play, rather than observing another representation of reality. He believes that the machinery of theatre, opera, and the press is no longer "a means of furthering output but as become an obstacle to output, and specifically to their [intellectuals'] own output as soon as it follows a new and original course which the apparatus finds awkward or opposed to its new aims" (34). In the case of medical imaging technologies, I consider the perspective that the apparatus that produces the texts create them for their own purposes – the machines justify their existence. Examples of questions that Brecht's theories help address are: How are the needs of the machines affecting what they produce? How is the x-ray or CT scan propaganda? Do these procedures and practices continually verify the physician's privileged status? Brecht believes that the apparatus produces merchandise, "ruled by the normal laws of

mercantile trade” and that is not a good thing (35). Medical imaging technologies clearly provide a vast and complicated economic foundation for many industries, from those that produce the machines, supplies, and training to the medical practitioners who use them. Ultimately, the machines are nothing until they produce an image; yet the image seems *to the patient* to offer such a simple truth (either it’s normal or it’s not) that it transcends being defined as a product for consumption.

The medical encounter can involve a substantial economic transaction with the patient at its crux; he is a player in the operating or exam theater. Brecht’s techniques in the dramatic theater include the direct address by actors to the audience, transposition of text to third-person or past tense, and speaking the stage directions aloud. He encourages actors to show their own feelings about the characters they portrayed, which includes disdain and mistrust, and invites the audience to do the same (138-139). By establishing the fiction of the play, Brecht tried to empower the audience and enable them to understand that they can change their own realities. This project utilizes techniques adapted from Brecht that highlight the patient’s agency and control over how medical technologies are implemented by underscoring certain realities through narrative that detaches the patient from the medical encounter. Through the narrative (and in many other ways), we see that the patient ends up replicating a fragment of himself in medical imaging procedures.

Once a medical artifact exists, the patient can become less central to her own medical care and physician. The artifact serves as a fragment of her that replaces some information that, in the past, her body would have provided the physician. Yet, the scan or record is often alien to the patient. Fragmenting the text-based interpretation of the image creates a new way of understanding the physician and the often cryptic medical report itself. It might offer something like Barthes's "third meaning," as described by Ray. Barthes fragments both movie stills and written texts and interprets them out of context. "Both Barthes's 'third meaning' practice of reading movie stills and the Surrealist strategies of film watching amount to methods of extraction, fragmentation," Ray says (36). It isolates the detail from the narrative, so that its meaning becomes open for new interpretation. In this case, we can rearrange the fragments to reveal a different meaning of the medical text. This project offers analysis of the medical record itself, in terms of its semiotics and semantics, and what it means outside of the patient/physician encounter. In *S/Z*, Barthes provides an exhaustive appraisal of how the readers generate that meaning. Through this process, Barthes "recognized that passages unstuck from the larger narrative prompted speculation, different readings, play" (Ray 97). This combination of approaches to analyzing the medical artifacts and processes is experimental and unusual and can produce new, valuable knowledge.

The consideration of medical imaging technologies as a subject for the humanities is being addressed by several scholars, including José van Dijck who challenges “the simplified notion that new imaging technologies lead to more knowledge and thus lift the veil from the interior body” (16). Van Dijck specifically cites the approach taken by Lisa Cartwright as a guidepost: an image is a representational tool producing meanings at a specific moment in time. Cartwright asserts that the medical image is full of cultural meanings, but admits that she has “not always been specific about the nature of those meanings in terms of subjects and their cultural identities (142). She primarily addresses the medical image in terms of popular culture, as does van Dijck. Likewise, Joseph Dumit describes how positron emission tomography scans have transformed cultural views about the mind. Unlike this project, Dumit specifically focuses on images used in research rather than diagnosis or intervention and shows how these images are disseminated and interpreted in popular culture. He argues that these scans shape opinions in a variety of contexts, including social views of mental illness, and finds that scans made public serve many agendas. “While representing a single slice of a particular person’s brain blood flow over a short period of time, one scan can also represent the blood flow of a *type of human*, be used to demonstrate the *viability of PET* as a neuroscience technique, and demonstrate the *general significance of basic neuroscience research*,” says Dumit (4). Kevles points out that

the technologies have had an enormous impact on art and culture in that “we no longer see surfaces as barriers” but places into which we have access (261).

The existing research contributes to this project, though differs greatly in form and effect. This project relies heavily on the scrutiny and analysis of real medical records and images, observations from the field, and analysis of the research with the unconventional methods previously outlined. The existing literature discusses medical images seen through the very large window of culture, whereas this project focuses on the personal level. It utilizes personal encounters and narratives, though contains expository sections that establish a framework for the form. It includes narrative components that describe observations of physician/patient interaction with specific medical technologies, along with discussion of current research on medical technologies relating to the digitization of the patient. In the context of this project, the narrative refers to stories or illustrative case studies of patients undergoing medical procedures.

Extensive narrative, in addition to the methods described above, may violate conventional form and content, and seem unreliable in the face of conventional scholarship. Ray outlines the traditional allocations “assigning narration to the novel, exposition to the essay, and poetics to the poem” but points out that the avant-garde allows the author creating the text to adjust the balance of these to his own needs. Ray says the urgent question is how to “establish links that will produce *information*, redefined as a function of surprise” (200).

Ray points out that “the appropriation of avant-garde experimentation for the purposes of humanities research” is controversial (199). The avant-garde here refers to methods of fragmentation, juxtaposition, repurposing, and the Surrealist tradition. Ray justifies its usage as an ideal way for film studies to be understood in an “electronic world” (199). It is also an ideal way to generate a new understanding of medical imaging technologies and their affect on the way we view our bodies, ourselves, in an electronic world; these methods outlined here, developed outside of medicine, offer a powerful way of considering our electronic selves in an electronic world. There is even a direct connection between Surrealism and imaging technologies; the latter had a significant influence on the Surrealists themselves. Kevles describes the influence of x-rays and the idea of transparency on artists, particularly cubists, such as Picasso and Braque (124). Following them, many artists throughout the decades have appropriated x-rays themselves to represent meaning outside of their original purpose.

Ray points out the benefits of using Surrealist tools, specifically:

... the emphasis on method, the tolerance of chance, the practical goals. Above all, Surrealism and its descendents took seriously photography’s break with alphabetic culture, its introduction of new ways of meaning unanticipated by the camera’s first users. As it *developed*, photographic practice confirmed Mallarme’s confidence in the benefits to be had from “yielding the initiative” to signifiers—a poem’s words, an image’s details, an argument’s arrangement on the page. (199)

In the end, this project evaluates how people are affected by various medical technologies and not how to build a better fluoroscope. The disciplines involved in texts and technology theories allow for a unique application of theories to facts – information that we understand to be true about a medical setting – than more rigidly empirical fields, and experimentation with voice and narrative expands the ways in which we can examine case studies and other qualitative data to investigate the character of patient and physician roles in light of medical imaging technologies. There are examples of successful attempts at addressing technological issues in the humanities through an innovative combination of narrative and conventional scholarship.

Stone successfully combines narrative and high theory in way is “a kind of adventure narrative interspersed with forays into theory” (21). She admits that it is experimental and “subject to recall,” but ultimately succeeds in drawing together knowledge from many directions into a coherent exploration of the shifting boundaries between humans and technology. She feels that this offers the only way that she “can properly grapple with the formidable challenge of finding viable pathways into academic discourse in the time of cultural studies” (21). Stone considers herself a novelist and does not apologize for allowing that to influence her approach to scholarship. She “grapples” for different ways to tell the story (20). In addition, Ray’s approach to film studies tells a number of stories, resulting from his unconventional methodology. Ray employs extensive fragmentation and collage, influenced by Barthes

and the Surrealist techniques, which results in a unique form that defies convention and provides extraordinary insight into the analysis of moving images.

In the works referenced here by van Dijck, Cartwright, and Kevles, and in related research, it is relatively easy to locate a comprehensive historical review of medical imaging, its role in culture, and how it is changing views about the body. This project relies on that research and contributes to it, but also offers alternative methods of analysis that produce different results. We can use this rhetorical evaluation of the artifacts produced by medical imaging technologies and their accompanying text records to better understand the fragmentation and digitization of the patient, along with her expectations related to illness and the human body. The existing research often shows how medical images and technologies affect and are portrayed in literature and art; this project turns the artifacts into literature and art and by doing so, answers questions that existing research has yet to address.

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