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Access Workers, Transcription Machines, and Other Intimate Colleagues:

Disability, technology and labor practices in the production of knowledge (1956-present)

A dissertation submitted in partial satisfaction of the requirements for the degree Doctor of Philosophy

in

Communication

by

Louise Hickman

Committee in charge:

Professor David Serlin, Chair
Professor Lisa Cartwright
Professor Michael Davidson
Professor Valerie Hartouni
Professor Lilly Irani

2018

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Chair

University of California, San Diego

2018

DEDICATION

For Joan.

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ABSTRACT OF THE DISSERTATION

Access Workers, Transcription Machines, and Other Intimate Colleagues: Disability, technology and labor practices in the production of knowledge (1956-present)

By

Louise Hickman

Doctor of Philosophy in Communication

University of California San Diego, 2018

Professor David Serlin, Chair

Curating Accessible Infrastructure investigates the cultural politics of real-time transcription for deaf and hard of hearing students in the academic classroom. I analyze how d/Deaf and hard of hearing students maintain access to spoken speech through the transcriptive labor produced by a stenographer's engagement with assistive

technologies. Rather than think of access as a set of pre-established conditions, this dissertation project seeks to understand access as an historical event and mode of political production. To interpret access through this broader understanding, I undertake case study analyses of real-time captioning practices as supported by stenographic technologies, and examine how the production of real-time captioning and access more broadly requires distributed, embodied, and social labor. These processes, when studied together, reveal formations of access that are bound by their relation to what I call "collegial infrastructure," a network of affect and technology governed by codes of civic discourse. I draw on the history of disability legislation in the United States and the United Kingdom to critique a legal rights framework for people with disabilities as a neoliberal phenomenon, and I focus instead on how midcentury public accessibility laws, predating the inception of the Americans with Disabilities Act in 1990, illuminate a political economy of access.

Drawing on these genealogies, I trace how midcentury labor practices informed infrastructures of access for d/Deaf and hard of hearing readers today. The historical transformation of the stenographer's shorthand – from the mode of transcribing speech to personal handwritten annotations used by machine stenographers to support their ciphering texts through software programming – informed how spoken speech is rendered into real-time captions in academic spaces. I argue that this approach to the production of real-time access reveals the historical practice of shorthand and digital coding to be a crucial precondition for the success of the information economy today. During the transition of stenographic technologies from the midcentury office into the

classroom, the production of real-time access for d/Deaf and hard of hearing users became increasingly gendered, disciplined, and even machinic.

Amidst the rise of automation, the idiosyncratic pairing of the stenographer and their machine continued to resist the process of standardization. In situating the political economy of transcription work outside of the sphere of reproductive labor, this dissertation considers an emerging category of access workers that is increasingly defined by the standardization of labor practices. By tracing the transcriptive labor provided by stenographers, I draw on feminist studies of affective labor and the ethics of care debate to argue that the precarity of this type of work has proliferated a new species in the sexual division of labor: access workers. This discussion surveys multiple examples of caring labor, spanning a feminist genealogy of dependency work to recent research into “crowd work” where human interactions are mediated by online platforms. The contrast between somatic, direct-contact forms of care, and the growth of low-paying and piece labor provided by online crowdsourcing, has played a vital role in making online content accessible for d/Deaf and hard of hearing users. Attending to these labor changes, this project examines access as a mode of production that interrogates the politics of disability by centering workers’ material and affective labor.

INTRODUCTION

Toward a Critique of the Political Economy of Access

In 2015 a wave of litigation was brought against the Massachusetts Institute of Technology (MIT), Harvard University, and the University of California, Berkeley, by the National Deaf Association for their collective failure to provide closed captioning for the delivery of their online content, including lectures and podcasts. The National Deaf Association cited this lack of access to closed captions as a violation of students' civil rights. While MIT and Harvard moved ahead to provide the required captions, UC Berkeley chose instead to withdraw their online archive, due to the projected cost of retroactive captioning (Public Affairs Office, UC Berkeley, 2017). As a result of this take-down, access to UC Berkeley's online archives is now strictly regulated and only available to students with disabilities, who must legally verify their need for accommodation through the university. Upwards of twenty thousand lectures, previously available for public consumption, have therefore been taken offline to serve the private interests of the student population.

The gulf between public accessibility – which serves and enriches the public – and private access – acting in service to a small minority at an elite (albeit public) institution – is poignant here. The building and maintenance of accessible infrastructures, which emerged historically out of disability rights activism in cities like Berkeley from the late 1960s, was understood as a human rights-centered response to supporting the needs of those with disabilities. The type of access that sees online

lectures freely available for public consumption is considered a "negative right," that is, a cost-free intervention where the retrieval of online content is treated on par with a non-state interventionist approach to political participation. As the political theorist Maya Sabatello (2013) observes, negative rights often bare no cost to the state in terms of accommodating disability. When the Ninth Circuit Court ruled to support the National Deaf Association claims that the failure to provide closed captions was discriminatory to d/Deaf and hard of hearing people, however, a demand was placed on a public institution to fund and provide costly captions; the provision of access as a negative right was suddenly reconfigured as a positive right[1]. In other words, when the question of access provision changes from the removal of (de jure) barriers to positive (de facto) realization, the state's abstract definition of access is thrown into crisis. Whereas access was previously assumed to be a natural state that the government need only remove unnatural *barriers* to, the materiality of cost – including the resources and labor power necessary to transcribe lectures and podcasts – not only reveals the state's severely limited commitment to disability rights, but more importantly, demonstrates that access is the product of an historical mode of production. Unlike the state's rights discourse, this dissertation does not presume access as the "state of nature"; in sum, this dissertation is a theory and critique of the political economy of access.

To comprehend access as part of a historical mode of production allows one to reconsider the construct of the ramp metaphor that is prevalent in disability studies as a way to generate tacit knowledge about access. In some instances, the ramp metaphor

[1] The usage of d/Deaf, as well as hard of hearing here denotes the heterogeneous community in which individuals might identify themselves along a continuum of "deafness." Additionally, the capitalization of the category "Deaf" signifies an orientation towards access to a specific cultural identification with sign language. (Padden and Humphries 1998; Friedner 2005) In the United States, the uptake of real-time captioning is often requested by those who do not use or have access to American Sign Language.

signals the first wave of the disability rights movement to signify when the Bay Area's activists took multiple sledgehammers to flatten inaccessible curbs in and around the city of Berkeley; for others, the ramp metaphor may simply suggest a mode of inclusion. From the perspective of the social model of disability, which centers the social and environmental structures that produce disability, the lack of access is deemed fixable through the constructing of ramps. These corrections imply fault with the built environment, rather than the impairment of the body. Here, rather than assuming the construction of these ramps as natural, I revise the ramp metaphor to consider the labor involved in the design and construction of access, which is distributed between various local, national, and legislative bodies.

The universities' mixed responses to the court's decision reveals an infrastructure of access for d/Deaf and hard of hearing consumers that is unevenly distributed. To complicate matters, closed or real-time captioning is no longer produced in close proximity to its consumers. Over time the labor of transcription has been increasingly outsourced and become a global commodity. Whether that has been due to an increase in demand for transcription services still remains unclear, but the option to produce transcription services, including closed captions, at a low cost has been made possible by the exporting of transcriptive tasks overseas through micro-tasking platforms. Transcribing for access on these terms has further denaturalized the right to access as a whole, unveiling a network of access only made possible through the labor of others. The production of audio description for blind people and those with low vision has recently been surveyed as the second most popular task on Amazon Mechanical Turk, comprising 26% of all micro tasks (Smith, 2016; Bigham et al., 2017). The

fragmentation of the text in piecemeal transcription labor, in every form from audio description to closed captioning, removes the narrative context for the laborer, and thus removes the consistency of the narrative for the end-user.

The success of the Accessibility Act (2010) has been widely celebrated as a cornerstone of disability inclusion, one that adds to the liberal lexicon of equality and diversity in an expanding project of accessibility (Titchkosky, 2011; Fritsch 2013; Fritsch, 2016). Yet the figure of the stenographer(s) and their transcriptive labor has become progressively more nebulous, marked by precarious working conditions. Silvia Federici (2008), an Autonomist Marxist, defines precarious work as the increasing indistinction between work and reproductive labor in today's global economy. Even though there is a growing uncertainty and precarity around transcriptive labor, this labor is still viewed as necessary by the law, and this constructs a cache of transcriptive work completed by low-paid and non-waged workers alike. As Autonomist Marxists reflect on the rise of "flexi time" on par with flexible forms of accumulation and production on a global stage, transcriptive labor has in particular become increasingly discontinuous and fragmented on both a local and a global scale, being met with shifting, precarious work conditions and undermined by the recent waves of austerity and cost-cutting measures. Robert McRuer (2018) in his book *Crip Times: Disability, Globalization and Resistance* describes the success of austerity politics as secured by the "rhetorics of emergency" either through "reducing national debt" or "protecting banks from catastrophic loss" (p. 16). Across university campuses flexible modes of production, such as transcriptive labor, have collided with austerity politics to normalize a cost-cutting agenda for cheaper labor costs. When confronting the politics of austerity in academic classrooms,

reducing the accessibility of media content online at the expense of access (via captioning) becomes a political matter.

In the following chapters I study the complexities of accessible infrastructures by examining the politics of transcriptive labor, the automation of access, and the standardization of labor practices. The nineteenth-century concept of *amanuensis* (Latin for “enslaved hands”) was largely used to describe a person responding to the transcriptive command of another, or more precisely in this dissertation, through the labor of an Other. The presence of the Other among these chapters is located in the labor performed by stenographers. This labor has been an underserved area of study within Disability Studies and Deaf Studies, a lacuna that I attempt to fill here.

A note on language: I name stenographers, sign language interpreters and audio describers *access workers*. Here, the proposed theory of *access workers* draws on various genealogies of labor and work to describe the intersection of knowledge workers and dependency workers. With both types of labor growing under post-industrial economies, knowledge workers perform types of labor that involve the exchange of information, communication, knowledge and affect (Hardt, 1999). The modernization of these economies has deployed types of labor that are considered mobile and offer workers flexible working conditions. The affective labor completed by such workers parallels the feminization of labor, or the devaluation of clerical, caring, and emotional labor associated with women’s work, as Michael Hardt further explains: “caring labor is certainly entirely immersed in the corporeal, the somatic, but the affects it produces are nonetheless material” (p. 96). The term “dependency workers” was derived from the ethics of care debate that developed during the early 1980s to describe

the complexity of attitudes towards reproductive labor. Dependency workers is a term proposed by Eva Feder Kittay (1999; 2003) to describe the allocation of uncompensated labor found in domestic spheres. Conceived of in this way, dependency workers could be a family member or paid attendants of care, and the labor of such workers might be privately sourced or provided by the state. However, I describe access work as existing outside traditional understandings of reproductive labor, in that access work demands anonymity and professionalism, and thus a disassociation from care, femininity, and intimacy. Drawing on these genealogies of labor, we find that access workers occupy a curious position: they need to provide affective labor when transcribing and producing accessible texts but are required to simultaneously maintain their anonymity.

In this instance, the maintenance of anonymity is demonstrated through one of the most prominent figures in this dissertation: the female stenographer. She provides the labor of speech-to-text transcription, and undertakes the affective labor necessary to cipher phonetic shorthand into readable texts for d/Deaf and hard of hearing consumers. She does this while remaining anonymous, discretely adapting to the expanding role of dependency work in a postindustrial economy, and centering the agency of marginal groups. Yet the figure of the stenographer as a worker is notably absent in history unless called upon to resolve anxiety around the advancements in automated technology, especially those that emerged during the economic boom following World War Two.

As I will demonstrate, the standardization of the stenographer's labor is entwined with a genealogy of care to redirect transcriptive production into the hands of low-paid workers online. This redirection of labor does not necessarily fragment the work of

stenographers, but instantiates a cohort of workers to complete transcriptive labor through the exploitation of different areas of expertise. The hierarchies of transcriptive labor (from closed/open captioning and audio description to real-time captioning and courtroom work) are being concurrently restructured to identify and hire workers from a wide background of working conditions. As a result of the Americans with Disabilities Act (ADA 1990), the Telecommunication Act (1996), and the twenty-first century Communication and Video Accessibility Act (CVAA 2010) increasing amounts of media content are now being captioned.

The Accessibility Act, inaugurated by the Obama Administration in 2010, successfully secured the wider programming of captioned media content for streaming services like Netflix, Hulu and Amazon. In the summer of 2012, the Massachusetts Federal District Court ordered the Netflix media streaming company to provide captions for their online content to comply with the Americans with Disabilities Act's demand for "public accommodation." Netflix responded by challenging the Americans with Disabilities Act's conflicting definitions of public accommodation, and arguing that they could not be held accountable for media content due to copyright infringement (Wooten, 2012). In light of this case, the Federal Court found Netflix and other online distributors responsible for the captioning of media content as, once the Ninth Circuit Courts clarified that Netflix was on par with a brick and mortar store, they were liable to comply with the laws of public accommodation. Bringing closed captions to consumers has been historically understood through a media system shaped by disability legislation, but rarely from the multiple standpoints of either the consumer or the producer of the captions themselves.

In this dissertation, the study of these multiple standpoints aims to take into consideration the much-needed interdisciplinary focus concerning the production of accessible texts in the social sciences and humanities. I thus attempt to portray an assemblage of transcriptive processes as occurring across multiple subjects (stenographers and readers) and objects (steno-machines and other technologies). When studied together, stenographers and their machines reveal a sociotechnical process bound by their engagement with disability legislation both predating and succeeding the establishment of the Americans with Disabilities Act. Animating transcriptive labor practice across postindustrial economies will at times appear immaterial, especially when theories of access are subject to their material connection to the pre-established infrastructures defined by human rights legislations.

Chapters Summary

In the first of the four chapters I outline the development of research methodologies pertaining to disability studies in both the United Kingdom and the United States. In 1972 the inception of methods into public consciousness begins with an unlikely letter addressed to *The Guardian* newspaper calling for the deinstitutionalizing of disabled people in state-run care homes in the United Kingdom. This call led to the establishment of a group of sociologists and activists working towards an inclusive model of research, in particular emancipatory and participation-based research methods. Allying the development of inclusive research strategies with the group's public commitment to the social model of disability resonates with the potential for critical theory's own intervention into methodology.

Chapter two consider the first legislative bill related to assistive technologies, passed in 1956, which sought to provide captioning services for d/Deaf and hard of hearing users and enable them to access federal libraries across the United States. Contrary to the received wisdom among historians of disability, who often critique a legal rights framework for people with disabilities as a neoliberal phenomenon, this midcentury bill predates much disability legislation established in conjunction with the Americans with Disabilities Act in 1990. I contrast these landmark civil rights cases with anxieties around automated technology for the general population and people with disabilities. By tracing the contours of the historiography of transcription this chapter attends to the midcentury formation of stenographic labor to historically situate the emergence of a civic responsibility toward ensuring accessibility for disabled people.

Chapter three explores the historical transformation of the stenographer's shorthand – their written annotations and textual ciphering input through software programming – which transforms spoken speech into real-time captions in academic spaces. Compared to the midcentury practice of written shorthand, and the stenographic machine that dates to the turn of the 20th century, the human-machine labor of contemporary captioning is indebted to an aging technology system. This approach to the production of real-time access reveals the historical practice of shorthand and digital coding to be a crucial precondition for the success of the information economy today. During the transition of stenographic technologies from the midcentury office into the classroom, the production of real-time access for d/Deaf and hard of hearing users became increasingly gendered, disciplined, and even machinic.

Amidst the rise of automation, the idiosyncratic pairing of the stenographer and their machine continues to resist the process of standardization.

Chapter four situates the political economy of transcription work outside of the sphere of reproductive labor to consider the emerging category of access work that is increasingly defined by the standardization of labor practices for support workers and people with disabilities. By tracing the transcriptive labor provided by stenographers this chapter draws on feminist studies of affective labor and the ethics of care to argue that the precarity of this type of work has proliferated a new victim in the sexual division of labor. This discussion surveys multiple examples of access work and caring labor, spanning a feminist genealogy of dependency to recent research into 'crowd work' where human interactions are mediated by online platforms. The contrast between somatic, direct-contact forms of care, and the growth of low-paying and piecemeal labor provided by online crowdsourcing, has played a vital role in making online content accessible for d/Deaf and hard of hearing users in particular.

To conclude this dissertation project, the final chapter briefly considers the lack of urgency surrounding the threat of full automation of captioning in and beyond academic spaces. Thereby, looking towards the future of captioning in both theory and practice, requires further study on stenographers as access workers; and thus, establishing the production of accessible texts as worthwhile social texts of study by humanist scholars.

DISCLAIMER

In this dissertation, I have refrained from using common acronyms that shorten technical and repetitive terms, such Deaf and Hard of Hearing or DHH, to ensure full accessibility of the text.

CHAPTER ONE

Researching Methods in Disability Studies (1972 – 2018)

The study of access work and transcription spans a number of registers across the social sciences, humanities, and STEM fields. Across these academic disciplines among others, humanists have contributed towards the theory of captioning, labor studies has questioned the threat of full automation for workers, and Deaf studies has built an extensive archive testifying to Deaf activism and advocacy work. Rarely, however, has the transcriptive work of interpretation, audio description, and captioning been taken up as an interdisciplinary question for critical disability studies scholars and deaf studies scholars. There is an emergent field, often called Caption Studies, that has attempted to address this interdisciplinary focus, for example, the question of how sound acquires semiotic meaning through closed captions has been posed by Sean Zdenek in *Reading Sounds: Closed-Captioned Media and Popular Culture* (2015). Likewise, Gregory J. Downey's *Closed Captioning: Subtitling, Stenography, and the Digital Convergence of Text with Television* (2008) exhaustively recounts the historical emergence of speech-to-text technologies, including CART for education, closed captions for media content and courtroom reporting. In Downey's study, he recognized that Deaf schools and related activist groups were key to bringing caption technology to academic classrooms, but his systematic overview of the three speech-to-text systems (education, media and court work) failed to account for d/Deaf subjectivity beyond advocacy work.

In this dissertation, I extend the works of Zdenek (2015) and Downey (2008) by illuminating the collegial network shared by stenographers, stenographic technology and d/Deaf and hard of hearing consumers. In doing so, I choose to distinguish the study of captions in the US context from its counterparts in European contexts, in which the practice of captioning shares semiotic-material proximity with foreign subtitles (also known as open captions) and voice dubbing. From Europe to the United States, the grouping of such translational practices is not organized according to *access needs* associated with disability, but rather according to their multilingual need to produce accessible media content across multiple borders in Europe.

This emphasis on multimodal and multilingual communication compares with some contemporary scholarship in translational studies, where accessing audio description through "mainstream" television for blind people and those with low vision shares a similar analytic platform with other intermodal means of translation. For example, Sabine Braun, the director of the Centre of Translational Studies at University of Surrey, UK, describes and complicates intermodal means of translation by emphasizing the complex process of "cognitive-linguistic" practices involved in audio description. As Braun (2007) puts it:

> Its aim is to produce verbal discourse (AD narrative) which describes the essential visual elements and other relevant elements (e.g. some sound effects which are difficult to interpret without access to visual information) of a multimodal discourse (i.e. the original audiovisual event containing verbal, auditory and visual elements). The outcome of the process of audio describing (AD narrative) forms part of a new multimodal discourse (i.e. the audio described content, containing verbal and auditory elements). It involves processes of discourse comprehension and production in which different semiotic modes interact with each another as well as with the individual knowledge, experience and expectations of those participating in the discourse. (p. 2)

The distinction made between audio description narrative and multimodal discourse here acknowledges the complex distribution behind both the humanist meaning-making activity of transcription across multiple technological platforms distributed throughout European countries. Each of these countries has developed their own transcriptive assemblages, from a specific descriptive code of practice, to their own method of transmission into domestic homes. The UK, for example, transmitted their data through an analog system known as Line 21 to decode data passed through signals that did not carry visual information. The speed and efficiency of closed captioning (via Line 21) was hampered by slow data speed. Before the recent introduction of digital captions, many European countries still relied on the usage of expensive decoders that required direct fitting into d/Deaf and hard of hearing homes (Linde & Kay, 1999). Therefore, when translating the visual (and audio) content across national borders, translational studies scholars have found national practices of audio description narrative to produce their own distinctive semiotic-material dialects for description. While comparing such descriptive dialects across Europe seems like an area of study rich in possibilities for insight, it must be noted that both critical disability studies scholars and Deaf studies scholars have been largely omitted from translational conversations.

Rather than researching the theoretical gaps in the literature of translational studies, the following chapters will begin to weave together an interdependent network of transcription that recognizes the multiple subjectivities that are involved in the production of speech-to-text translations for d/Deaf and hard of hearing consumers. By recognizing the subjectivities of access workers among these chapters, I controversially

omit the names of the individual stenographers to reflect their mandatory anonymity when producing transcriptive labor in the classroom and further afield. I address this anonymity here and beyond this chapter to discuss the ways in which female stenographers are expected to simultaneously provide and omit affective labor as an essential part of their work. The anonymity of access workers, including sign language interpreters, CART providers and stenographers, has been largely advocated by the disability rights movement to foreground a particular type of agency for marginal group members. The liberal construction of agency has been beneficial for many disabled activists to engage with the ethics of the Independent Living Movement, which was initiated during the early 1970s. The emphasis on subjectivity for both disabled and d/Deaf individuals, as post-humanist scholar Cary Wolfe (2013) observes, is founded on a particular and circumscribed type, that is, "subjectivity as agency." The conflict between "agency" and "subjectivity" on these terms has been addressed by Myriam Winance's *Care and Disability* (Winance 2013; see also Winance 2010), in which the author points to the conflicting ethics held between disability theory and the ethics of care debate established during the early 1980s.[2] According to Winance, during the early onset of the Independent Living Movement, a disabled person was conceived of as an inherently independent subject and their perceived dependency was subsequently constructed socially through pathological conditioning. In turn disabled subjects were readily positioned in a way to choose their own assistance and care, an approach which became integral to the values and success of the independent living movement. To choose, direct, or consume care in this way was antithetical to the

[2] Certain authors combine the two approaches, in particular Hughes, Mackie, Hopkins, & Watson, 2005; Watson, Mackie, Hughes, Hopkins, & Gregory, 2004.

debate around the ethics of care, in which key contributors would prefer to highlight the ways that human subjects are dependent upon one another, as Winance further suggests: "…we are all involved in affective and asymmetrical relationships of care; independence is a fiction, an illusion." (93, 2010) The impossibility of an interconnected independence does not ring true for many people with disabilities, especially when their agency relies on that which might appear to be a form of state dependency, such as welfare support.

As a disabled researcher with first-hand experience of the teachings of the independent living movement, I draw on these conflicting sensibilities to identify certain theoretical shortfalls pertaining to narratives of interdependency and independency. A critique of interdependent relations might seem unwarranted for feminist scholars interested in the ethics of care, which is further explored through the development of a collegial understanding of access in chapters three and four. Among these chapters, I cautiously refer to "interdependency" in order not to obfuscate the complexity of care exchange between access workers and those who are perceived as dependent subjects. By exploring an assemblage of transcription bound by the intimate proximities shared by access workers and their stenographic technologies, I maintain a focus on the *production* of access. Similarly, I counter the assumption that such intimate proximities in the relationships between access workers and d/Deaf and hard of hearing consumers are guided by a particular set of ethics.

The next section explores how both research methods and ethics are engaged by disabled and non-disabled researchers in disability studies in the United Kingdom and the United States. For access workers and researchers alike, the move towards

ethics and methodology is designed to address their own proximity to the labor of knowledge production in academic settings. In this way, stenographers are no longer reproducers of texts, but instead the workers are acknowledged as potential producers of accessibility. Thus new questions around authorship and co-constitution emerge, for instance: at what point do we recognize co-producers or producers of these social texts as named authors?

Methodology

> Interdisciplinary research and its problem is an issue, which is characterized by conceptual unclearness and mess. (Granberg, 1976, p. 1)

> The argument, then, is that social science is performative. It produces realties. But what to do with this claim? (…) We have suggested that issue is one of "ontological polities." If methods are not innocent then they are also political. They help to make realities. But the question is: which realities? Which do we want to help to make more real, and which less real? How do we want to interfere (because interfere we will, one way or another)? (Law & Urry, 2004, p. 69)

The following section engages with the genealogy of methods in disability studies. To do so, I explore how the medical model of disability and social model of disability have informed the historical formation of research practice for disabled and

non-disabled researchers alike. When analyzing the social model of disability, I question why an outdated model of research is still utilized by both the academy and social activists despite its many limitations. Moving from the application of the social model to recent methodologies such as crip theory and critical disability studies, the following considers the impact of emancipatory and participatory models of research that were originally developed by British disability studies. In developing emancipatory research, sociologists became concerned with disabled people's involvement with their own knowledge production in disability studies during the early 1980s. Among these scholars and activists, there was a keen resolve to correct the existing structural imbalance. The intention of the following discussion is not to resolve these imbalances, but rather to explore the historical tensions surrounding the agency and subjectivity of disabled researchers to show the importance of rethinking our methodologies through emancipatory models, and the capacity of this model to change how we do our work.

Social Model of Disability: A research tool?

In the contemporary climate of disability studies, transnational modes of inquiry have served to subvert the strict social model of disability as taken up by scholars and activists since the 1970s.[3] The oft-cited deterministic approach of the social model of disability has largely advocated for the removal of structural barriers, which are seen to be *disabling society*. This formulaic response was partly adopted in direct response to the medical model of disability, which locates the problem of disability with the body of the afflicted. With the lens of the medical model, people with disabilities were often

[3] Even though British Disability Studies does not assume the central stage of this dissertation, I assess their ongoing commitment to methodological practices in the UK and beyond.

objectified through pathological practices defined and guided by empirical and objective knowledge about the body. A holistic view of the body was meted out by the authority figure of the medical professional to determine the correct course of treatment. In response, feminist and crip studies scholar Alison Kafer (2013) has argued that the problem with the medical model, ultimately, is the depoliticization of disability. Thus, in most instances, the disturbing failure of the medical model is the lack of engagement with the social, political, and economic contexts that give rise to disabled experiences, and the lack of understanding of disability as a social justice issue. To resist the depoliticizing of disability, Kafer suggests the move towards justice frameworks are mobilized by social and global orientations. Such objectives share similar overlaps with the social model of disability, as suggested by the British disability studies scholar Daniel Goodley (2014), when he succinctly summed up the model as one that turns "disability-as-impairment" (a classic medicalizing and essentializing strategy) into "disability-as-oppression" (in line with the sociologically modernist blueprint of many a political movement). The social model's concern with the structural exclusion often limiting the disabled body is broadened to include social and material modes of exclusion, which are enacted through quotient practices from education to the welfare system (Barnes, 1991). This approach is termed by Tom Shakespeare as "materialist disability studies" – which has become synonymous with the British school of disability studies (Shakespeare, 2013). The social model of disability has more recently been taken up by international policy makers in order to influence the expansion of international community-based programs (Gabel & Peters, 2004). To organize against such exclusion in the United Kingdom, the transition from pathological discrimination to

the social model of disability was codified in 1975 with the founding of the grassroots organization the Union of the Physically Impaired Against Segregation through their publication of *Fundamental Principles of Disability*[4] (Hunt 1972; Finkelstein 1980; Barnes 1991; Oliver 1996; Shakespeare 1997). One of the founding members of the Union of the Physically Impaired Against Segregation, Mike Oliver, who now serves as a researcher at the Centre of Disability Research (Leeds University) has explained the transition this way:

> In our view, it is society which disables physically impaired people. Disability is something imposed on top of our impairments by the way we are unnecessarily isolated and excluded from full participation in society. Disabled people are therefore an oppressed group in society. To understand this it is necessary to grasp the distinction between the physical impairment and the social situation, called 'disability', of people with such impairment. Thus we define impairment as lacking all or part of a limb, or having a defective limb, organism or mechanism of the body and disability as the disadvantage or restriction of activity caused by a contemporary social organisation which takes little or no account of people who have physical impairments and thus excludes them 4 from participation in the mainstream of social activities." (Oliver, 1996, p. 22)

For these disability advocates, modes of "full participation" are facilitated only by understanding disability through the social model. This model has come to act as a forum through which activists and civic bodies can converse to create a common language around accessibility that is legible to national governmental agencies. There were concerns among some of the *Union of the Physically Impaired Against Segregation* members that the use of the social model in this way was equated with the abandonment of disability rights discourse. Thus, as Oliver (2004) argued, the founding members of the group brought together a shared language and practice enabled by the

[4] *Fundamental principles of disability* (1975), London: Union of the Physically Impaired Against Segregation.

social model, which gave activists and scholars a particular set of demands with specifically defined criteria for evaluation. Enacting political and social change through the use of the social model allowed Oliver to assess the value of this model as "a practical tool, not a theory, an idea or a concept," but as "ways of translating ideas into practice" (Oliver, 2004, p. 30). The association between theory and practice was a key factor for many original members in the translation of this model into direct action (Barnes, 2012), and also an effective tool for creating a non-disabling society (Zarb, 1997). As a result of this deterministic model, the development of emancipatory research as further described below is particularly influential when scholars and activists can apply historical materialism to their work. The following discussion will also assess the academic limitations of assuming the social model as an orientation device for research.

The origins of the social model

The inclusion of disabled researchers during the early stages of research in British disability studies was motivated by activists' strong commitment to the social/minority model of disability. These concerns were first raised by disabled activist Paul Hunt, when he published an open letter in *The Guardian* newspapers on September 20th, 1972. In this letter, Hunt called for a united struggle by disabled people against the oppression they experience in "all areas of their lives." As Hunt further writes: "I am proposing the formation of a consumer group to put forward nationally the views of actual and potential residents of these successors of the workhouse. We hope in particular to formulate and publicize plans for alternative kinds of care" (see Figure

1.1 below). The publicity garnered by the letter led to the establishment of the grassroots organization Union of the Physically Impaired Against Segregation, which devised a new framework for understanding disability that came to be known as the social model, a conceptual framework still used today by activists and scholars in the United Kingdom.

THE GUARDIAN

London **Wednesday September 20 1972** **5p**

Sir, – Ann Shearer's account of the CMH conference *of* and not *on* the so-called mentally handicapped, challenges our patronising assumptions about such people. It also has important implications for anyone who genuinely wants to help other disadvantaged groups. For instance, practically every sentence in her article could apply with equal force to the severely physically handicapped, many of whom also find themselves in isolated and unsuitable institutions, where their views are ignored and they are subject to authoritarian and often cruel regimes.

I am proposing the formation of a consumer group to put forward nationally the views of actual and potential residents of these successors to the workhouse. We hope in particular to formulate and publicise plans for alternative kinds of care. I should be glad to hear from anyone who is interested to join or support this project. – Yours faithfully,

Paul Hunt.

61 Chettle Court,
Ridge Road,
London N 8.

Figure 1.1 [Image Description]: The depiction of the letter above is the original document as it appeared in the Guardian newspaper in 1972, London. This letter called for disabled people to become activists for their own rights, and reject institutional care. Image from Disability Archive, based at the Centre for Disability Studies, Leeds University, United Kingdom.

The close association between the Union scholars and other scholar-activists involved in disability studies emerged against the historical backdrop of British

imperialism. One of the most influential members of the Union for instance, Vic Finklestein, drew on his direct experience of the anti-apartheid movement in South Africa during the 1960s. After Finklestein arrived in the United Kingdom as a refugee, he helped organize against the mass segregation of disabled people in institutional settings. The existence of this socialist cohort of thinkers, particularly during the early days of disability studies in the UK began to illustrate a civic investment in the social model of disability through a materialist understanding of disability as a form of oppression to overcome.

The close proximity between civil rights agendas and the academic study of disability produced a long-lasting contention around the work of important British disability scholars like Mike Oliver (1992) and Tom Shakespeare (1996). Even though both scholars have remained committed to the social model, Oliver has stressed that this intervention was only meant as a tool to translate the oppression of disabled people, and was not a substitute for a materialist account of disability. While the social model of disability became ascendant in the 1970s and 1980s, many disabled researchers found commonality among scholars who drew upon poststructuralist and postmodernist approaches in consciously seeking to articulate their ontologies and epistemologies. By drawing on an introduction to emancipatory and participatory research to address this previous lack, we can consider how both the social and material relations of labor inform the production of research (Zarb, 1992). The material conditions of research, and how the disabled researcher might be central to its production were considered critical questions in British disability studies in the early 1980s.

In a recent survey of the field, Roland Berger and Laura Lorenz's *Disability and Qualitative Inquiry: Methods for Rethinking an Ableist World* (2016) found that, compared to the British approach to research, the question of methods was not taken up by disability studies scholars in United States until a decade later. The late 1990s marked the turn towards poststructuralist and postmodernist research, and thus became less invested in the militant approach largely adopted by the social model of disability. For crip theorists and activists alike, coupling direct action with models of self-advocacy provides modes of identification that shadow the work of the first wave of disability rights activists. In the mid 2000s, crip theory began to orient this discussion towards multiple sites of engagement, namely a conceptual framework, political motivation, modes of resistance, and compelling direct action. Crip modes of resistance in particular draw a parallel with the work of Colin Barnes, one of the main proponents of the social model, as he, too, has argued that this model be seen as a useful tool, and as a useful tool to challenge oppression through direct actions (Barnes, 2012). The emerging mobility of this critical consciousness gives a platform to an activist-subject position that rallies call from the streets while transforming the so-called "charity structure" to an organization that is run by disabled people (Barnes, 1997; Shakespeare, 1997; Longmore, 2003).

Cultivating a practice of disability pride, then, is not simply a so-called celebration of difference. It is a platform for thinking about equal citizenship in new ways rather than viewing disability as a passive form of dependency. "Disability" is thus reformed under its own experiential terms of reference (Shakespeare, 1997). Even as the *Union of the Physically Impaired Against Segregation* members advocated against "state-sponsored charity," the organization as a whole had to list itself as a charity. Essentially, the Union

were forced to cite a form of dependency while in receipt of charity, therefore repeating the antagonistic pattern of poverty (Barnes, 2012). The partially obscured paradox here speaks to ongoing conceptual and political tension that crip theorists continue to question. The disability rights movement shifted away from medical approaches to disability, suggesting that “disability rights” as a concept itself implies that there is a liberal solution to the disability problem (Russell 2002, quoted in Shakespeare 1997). But in this transition, we find that the structure of dependency, which is supported by a charity model, is replaced with a model of independent living as driven by a market economy. Attempts to procure independence on this basis are riddled with conflicting complexities, as growing inequalities force disability activists to confront and utilize the very same vocabularies from which they are medically disqualified (Foucault 1979, cited in McRuer 2006, p. 93). The process of reclaiming and othering here is consistent with a Foucauldian analysis; as counter-discourses emerge from the margins they become caught up in the cyclical distribution of power and knowledge (Shildrick, 2013). Therefore, the total abandonment of the medical/individual model and the social/minority model is near impossible for activists, due to the fact that even emancipatory discourses ultimately share the same vocabulary as the models they attempt to reject.

Each of these models, as discussed, has received its own criticism.[5] Shakespeare, to name one example, has argued that disability scholars should situate

[5] In a paper penned by Shakespeare and Watson (2002), The Social Model of Disability: An Outdated ideology? Criticisms of the social model were reviewed while responding to their US counterpart’s frame as the minority model, which in contrast to the social model some argue does not account for "defining disability as a social oppression.” The work of feminist scholars, including Susan Wendell, Liz Crow, and Jenny Morris, account for the experience of pain and limitation often as part of the impairment. See also Marian Corker, *Disability Discourse,* Buckinghamshire: Open University Press, 1999.

impairment as “scalar and multi-dimensional,” which influences how social differences are perceived; as he writes: “people are disabled by society and by their bodies” (Shakespeare 1997, p. 60). To comprehend how the body relates to its environment with complexity draws a parallel with Tanya Titchkosky’s (2013) definition of access, which has been historically described as a means to access physical place in the world. Titchkosky’s work instead reclaims discourses of access as the active agent of participation and dynamic interpretation between collective subjects and the built environment (Garland Thomson 2011; Titchkosky 2013). As Titchkosky writes, “access, then, is tied to the social organization of participations, even to belonging… [access] also needs to be understood—as a complex form of perception that organizes socio-political relations between people in social spaces” (p. ix).

The collective effort of this move toward social relations and away from discrete individualism directly responds to a model of disability/collectivity that is motivated through a political/relational model. That is, the climate of disability is appreciated as an emergent property, one that is conditioned by an interplay between impairments and structural imposition, most importantly shifting towards an understanding of what social interaction resembles in a crip framework (Shakespeare, 1999). As Kafer (2013) writes, “the problem of disability no longer resides in the minds or bodies of individuals but in-built environments and social patterns that exclude or stigmatize particular kinds of bodies, minds, and ways of being” (p. 115). Shifting toward this model recognizes that disability is not defined by physical or mental ability but, rather, regarded as a form of cultural identity that has the potential to bring about social change (Siebers, 2008).

Emancipatory Research

Emancipatory research emerged as a methodology when the civil rights movement was gathering momentum. How disabled and non-disabled researchers of disability might design and use emancipatory research projects was contested in the 1990s, contradictions and disagreements about what should be researched, who should do it and how it should be conducted served as a crisis moment for this approach.[6] This epistemological struggle resulted in the pioneering of a strategic methodology to co-produce forms of knowledge that would allow disabled people to fight for an informed political outcome intended to relieve the conditions of systematic oppression. Central to the formation of this strategic knowledge production was the implementation of the social model of disability, taken up by British sociologists in the 1990s (Barnes 1992; Oliver, 1990; Stone & Priestley, 1996; Oliver, 1999). The understanding that the social model would inform the ethics of this type of research lead to a certain liberation through producing knowledge, which centralizes disabled people's experiences and work as researchers themselves. [7] While this echoes the work of feminist scholarship, this particular political trajectory cultivated an uneasy relationship between researchers and disabled co-collaborators. According to Oliver, this tension left disabled people feeling violated when scholarly research was completed without them, or as he writes: "as irrelevant to their needs and as failing to improve their material circumstances and

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[6] This intense debate was the central feature of the Journal *Disability, Handicap and Society*, Vol. 7, No. 2, 1999.

[7] It is possible to expand on other definitions of emancipatory research, for example feminism, or other ideologies that are committed to the goal of people's emancipation. There has been some work that suggests that feelings and experiences are expected to be brought into feminist research processes and made explicit to readers (Reinharz, 1992; Ramzanoglu & Holland 2002; Naples, 2003).

quality of life" (p. 114). In response to the social model of disability, emancipatory research for disabled activists holds the objectivity of social justice as the key outcome of research. Emancipatory research is considered one of the two branches of research orientated towards the study of disability. The second, namely the *participatory* approach, is more clinical and often linked to policy-based research that broadly reflects the experiences of "service users," as opposed to research that is invested in a particular orientation, conducted by disabled activists themselves (Smith & O'Flynn, 2001). Likewise, participation action research is also known as inclusive research or action research, and this approach is particularly important for the inclusion of people with learning disabilities. The potential of participatory research has engendered support that links embodied experience and knowledge production with the overt aim of supporting emancipation efforts (Bailey, 2004). In assessing the social value of participatory research, as Katie Bailey has noted, the employment of this methodology has not been realized inasmuch as it is rarely used with the participation of persons with a disability (CILT 1995, p. 49). Quite often, this approach largely consists of a researcher (in most cases only one member of a larger team) who assumes the position of academic researcher and provides guidance vis a vis appropriate research methods for the disabled participants involved with the project, who in turn guide the direction of the subsequent research by drawing on their subjective experiences. The content of this research project, which includes interrogation of data collection, analysis and its dissemination, is therefore similarly conceived of as a joint enterprise. Tom Shakespeare (2006), for one, has remained cautious of research with an explicitly civil rights agenda; as I will go on to analyze. Thereby, when conducting research,

Shakespeare suggest that there should be an active engagement with questions of independency, but with an awareness of political agenda (p. 53).

While concepts of collaboration are not an unfamiliar endeavor when producing research within the academy, the framing of collaborative ethics was first posed by a cohort of British scholars with strong commitments to the social model of disability. These commitments ultimately shaped an orientation toward social justice before the establishment of the Disability Discrimination Act of 1995. The academy, particularly disability studies' active engagement with disabled activists like Paul Hunt and other members of the *Union of the Physically Impaired Against Segregation* were central to this contra-normative mobilization (Finkelstein 1980; Barnes, 1991; Oliver, 1996; Shakespeare 1997). Thereby, the fostering of an alliance between theory and practice, which in this case is linked together by disabled people's commitment to the "strong social model," was seen as integral for this type of knowledge production. These terms at times were misinterpreted by non-disabled researchers leading to research with a bias towards social policy making.[8] As stated previously, disabled people were concerned with what they considered to be the primary objective of the social model, advocating for "*empowerment"* and *"social change"* and not to be seen as "service users" (Zarb, 2003; Peterson 2011; Berger, Feucht, & Flad, 2014).

Both Barnes (1991) and Oliver (1996) have argued that traditional research into disability issues were flawed in a number of ways. These findings were contrasted with the nascent preferred approach to research by and about disabled people, in which

[8] In Jerry Zarb's *Running out of Steam? The impact of research on disability policy and the disability rights agenda* (2003) there is short summary of successful collaboration between researcher and disabled people.

collaboration with people with disabilities was key to the *design* and *application* of work that sought to advance *social* and *political liberation*. In disability studies and neighboring fields of research, Barnes and Oliver suggested that previous methods of human research were not sufficiently representative of disabled peoples' worldview or experiences.

Responding to some of these concerns, with their aptly-titled paper: *Parasites, Pawns and Partners: Disability Research and the Role of Non-Disabled Researchers* sociologists Emma Stone and Mark Priestley (1996) produced a list of core principles to hold non-disabled research to account. The design of these principles coexisted to compliment the *Union of the Physically Impaired Against Segregation's* objective relating to the social model of disability, as characterized below. The first of their core principles is to choose an *epistemology* to reflect the multiple standpoints that are not shaped by positivist assumptions. Secondly, that the surrendering of objectivity is necessary in order to commit to emancipatory research. Stone and Priestley draw on the content of Hunt's letter to the *Guardian* to reiterate that "researchers' self-imposed" and "hypocritical obsession with detachment" when studying disabled people were "inherently flawed" (p. 702). The third principle encourages researchers to choose a methodology that is relevant to disabled peoples' lives, as the authors write: "The researcher engages in processes of emancipation, rather than merely monitoring them from sympathetic sidelines" (p. 703). The fourth principle is considered the most fundamental, that is to reserve the social relations of research production. Thus, only by placing disabled people at the "apex" of research hierarchy can research be deemed "emancipatory" (703). The fifth principle draws on feminist and anti-racist strategies of

research to suggest that knowledge production is situated by practice and experience. In response, Stone and Priestley warned against emancipatory research as a means to reproduce the personal experience of disabled lives as mere description, but in a way that is bound to the question of human rights. The last of these core principles draws on "situated knowledge" to described the advantage of employing mixed methods, rather than focusing on qualitative data alone as a form of emancipatory research. Thus, from a sociological perspective, the pair encourages the practice of plurality, and ongoing employment of mixed methods.

The aforementioned principles support the vivid metaphor of the parasite employed in Stone and Priestley's title to describe non-disabled experts' knowledge and the ways in which their exploitative data holds fast to the medical model of disability. During the late 1990s, there were many disabled scholars situated in separatist camps of research who argued that non-disabled researchers should stay out of disability studies all together, these include scholars: Fran Branfield's *What Are You Doing Here?* (2010), James Charlton's *Nothing About Us, Without Us: Disability Oppression and Empowerment* (1998), and Rob Kitchin's *Disability, Space and Society* (2000). In conjunction with Stone and Priestley's work, these texts have supported Zarb's thesis pertaining to the material production of research for disabled people. Positivistic research has resulted in the curation of knowledge that is informed by a world of "disability facts" shaped by the judgment of advocates, policy makers, politicians and the courts, which is far removed from the actual subjectivity and sociality of many people with disabilities. (Rioux, 1996) In evaluating these experts' judgment, a level of

accountability was needed to address, as Rioux writes, “the very real forces that shape the questions we ask and the criteria of validity we adopt” (p.109).

Early research carried out in the United Kingdom was largely funded by the Department of Health, the Medical Research Council and Economic and Social Research Council.[9] More recently research on disability has been funded by social policy research and development charity the Joseph Rowntree Foundation and National Lottery Community Fund, administered by the government Department for Culture, Media and Sport. (Barnes and Sheldon 2007) These funding institutions and their implicit connections to health studies and social policy-making largely determined the landscape of research and knowledge (Zarb, 2003). Gerry Zarb, who was later employed by the Disability Rights Commission (UK), supports research with the potential for social change, but remains skeptical of work produced by a system in which research is subject to particular constraints, as he writes: “the kind of evidence used is typically restricted to the evaluation and measurement of structures and processes that already exist. Clearly, if those structures and processes are themselves fundamentally disabling, the use of evidence in this way only serves to maintain them” (p. 5).

Zarb has questioned if emancipatory forms of research can facilitate disability research in view of the material conditions of existing labor practices (1992; 2003). British scholars in disability studies have warned against the approach in which emancipatory concerns do not always translate into effective research questions (Watson 2012), or as Zarb writes: “…the research is still part of the problem and not the

[9] Even as the British model has largely been associated with materialist research, the recent rise of pro-austerity politics has heightened the urgency of this work.

solution." (Zarb 1992; p. 127) Thus questions remain, how do disabled researchers access and support their own accommodations (via reasonable adjustments), and how are labor practices brought into this discussion? Do these concerns risk alienating researchers with disabilities from their own research questions? These questions position disabled researchers as the exception rather than the rule.

In the development of a critical approach, the quiet assumption that the field of disability studies is disposed towards quantitative methods is questioned and resisted, an aversion that has been particularly responsive against regimes of "methodological positivism" (Berger & Lorenz, 2016). Roland Berger and Laura Lorenz have warned against this positivism as being "value-free" in response to disability. As they write: [an] "enterprise dedicated to the creation of objective (non-ideological) knowledge derived from scientific techniques capable of ascertaining the nature of empirical reality" (p. 4). While the underpinning of *methodological positivism* is a universal concern for both researchers and disabled people, both emancipatory and inclusive design have begun to work towards redressing this epistemological imbalance. Michel Foucault's coining of the word *scienticity*, according to the feminist epistemologist Aimi Hamraie (2015) is "used to denote the association with the phenomena with scientific proposition of the truth – rather than because biomedicine failed to adequately access the truth of the body" (p. 109). Although scienticity remains distinct from scientism, the former term identifies how the history of science is informed through a series of situated encounters, namely how policy, economics and the practice of science is informed by time and place (Lather 2006). The notion of repositivization, as Pattie Lather writes, "is at work in neoliberal times where refusing to concede science to scientism appears to be a central

task of those invested in qualitative work." Rather than prescribing the total dismissal of positivism, I seek to understand how disability studies scholars and researchers have continually opted to situate the body in the world along a continuum of objectivity and subjectivity.

Science **(e.g. physics)**	**Social Science** (e.g communication)	**Humanities** **(e.g. history)**
Empirical and objective Linear and cumulative Growth of Knowledge	**< ---- >**	**Explicitly Interpretive** Dispersed Knowledge
Experimental Methods Quantitative methods More concentered readership		**Discursive argument** Qualitative methods More varied readership
Highly structured genres		**More fluid discourses**
Objective		**Subjective**

Figure 1.2 [Image Description]: The table above is distributed across three columns to represent a sliding scale of how each discipline produces knowledge. The column on the left begins with the empirical discipline of science, the central column refers to social science, and the table ends with a column of the humanities. Moving from left to right in the same way, this table is organized to contrast the highly structured genres of science with the more fluid discourse of the humanities. The central column is titled 'social science' (of which Communication is a part) and the rows below are mostly left blank, with one multi-directional arrow pointing towards the right and left column (Hyland 2009; Goodley, 2010).

The table offers ways to traverse between the highly structured genre of data (science) on one hand with the dispersed and interpretive knowledge (humanities) on the other. The critical suffix of disability studies denotes the conjoining forces of disability rights and disability justice to reveal how regimes of knowledge and practice affect the displacement of the disabled body. While critical theory often sparks the

question of emancipatory politics, I will redirect this energy towards undoing the regimes of research methodologies that currently surround disability. In addressing the transformative potential of emancipatory politics as a critical approach, we can forgo, as Helen Meekosha and Russell Shuttleworth (2009) suggest, the binary ways of thinking about disability. Beyond the typical parallels, for example medical vs. social, disability vs. impairment, British vs. American, to highlight the shift. (ibid) Within these research methodologies there has been a trend towards poststructuralism and postmodernism which has situated disability as a discursive subject. While the paradigm of interpretive knowledge can work with the cultural contradiction to construct the discursive subjectivity of the crip, the question remains, how does this discursive position translate into research?

In his recent assessment of Max Horkheimer's *Traditional and Critical Theory* (1932), David Hosking (2008) considers the early impact of critical theory to locate sites of oppression, and, as he writes: "transform society with the objective of human emancipation" (p. 3). Hosking argues that Horkheimer draws on the contrast between what he called "traditional theory" and "critical theory," which is mirrored in the previous discussion of methodological positivism as it developed in the early days of disability studies. In Horkheimer's view, critical theory is "an account of the social forces of domination that takes its theoretical activity to be practically connected to the object of the study." In this way, critical thinkers of the Frankfurt School deflected fixed and objective reality with the potential to evaluate *power and privilege*. Hosking explicitly draws on Horkheimer's work to activate collaborative but critical engagement with how to describe the world *as it is*, rather than adopting the traditional position of disinterested

researchers. Critical theory subverts the positivist methodology to provide both "descriptive" and "normative" bases for social inquiry, and the move towards critical engagement is, according to Horkheimer, "explanatory, practical, and normative" at the same time. This collective critical schema must, as David Hosking writes: "explain what is wrong with current social reality, identify the actors to change it, and provide both clear norms for criticism and achieve practical goals for social transformation." In accordance with the tenets of critical theory, the descriptor of this project must be explanatory, practical and normative simultaneously to evoke an inquiry that extends beyond a post-positivist framework, and towards an explicitly *crip* methodological schema.

Rethinking Methodology Through an Ethics of Access

In the previous section, the trajectory of methodologies is informed by the founding of a socialist group against the mass segregation of disabled people, which enabled an exploration of the benefits and limitations of emancipatory research, and an evaluation of the significance of critical theory for both the social model and (critical) disability studies. The persistent thread of analysis through this chapter attends to how disabled and non-disabled researchers co-produce knowledge in academic spaces and beyond. In this review of the existing literature, access workers have not been factored into the methodological genealogy in order to reserve agency for the disabled researchers involved. Access workers in these settings are not typically understood as associated researchers, but rather as facilitators of knowledge production. To reduce the capacity of access workers' labor simply as a mode of facilitating knowledge

production raises both complex and important questions surrounding the *ethics of access*. Why is transcriptive labor not considered a stand-alone voice in the authoring and production of a text? Audio description is invariably considered by disability studies scholars and even practitioners as mode of access rather than a social text worth studying.

At the scene of transcription or assisted communication, for instance, who is producing knowledge? What are the affective and subjective demands of access workers? How do shifting understandings of personal agency inform these demands? These questions begin to identify varying points of tension that can be used to interrogate how state legislation, such as the Americans with Disabilities Act subtly determines the outcomes of knowledge production between disabled and non-disabled researchers. Retaining a commitment to emancipatory research, as suggested by Goodley (2009), has allowed for disabled and non-disabled researchers to consider disabled subjects as a resource for research.[10]

How might we take into account the ways in which the production of meaningful data for disabled participants becomes a question of methodology? The established interest in poststructuralist and postmodernist theories, through which critical disability studies emerged, allows many researchers a platform from which to articulate their ontologies and epistemologies. The most prominent of these articulations are accounted for by the turn towards phenomenology across the social sciences and humanities. Interdisciplinary fields including disability studies, critical disability studies and queer theory in particular have collectively turned toward posing questions about the reflexive

[10] Goodley, Dan (2009), Ethnography: A teaching resource. *Manchester Metropolitan University. www.leeds.ac.uk/disability-studies*

mediation of subjects' embodied experiences. This approach has proven essential for the work of Sarah Ahmed's *Queer Phenomenology* (2006), Tanya Titchkosky's *The Question of Access* (2013) and Robert McRuer and Merri Lisa Johnson's (2014) edited volume focused on the concept of "*cripistemology*." Following Donna Haraway's (1988) call for "situated knowledges," the range of aforementioned texts account for situated epistemologies that reflect the strategic emergence of interdisciplinary work. While these have become familiar tactics for disability studies scholars, Aimi Hamraie (2017) has argued that situated epistemologies in the field of disability studies produce particular forms of "access knowledge." For Hamraie, interdisciplinary work that articulates several situated epistemologies and particular knowledges together has proven useful for cultivating "animated relationships" between "scientific, architectural, industrial, national, and embodied ways of 'knowing' disability." In animating these relations, Hamraie is not simply recounting the ways we come to know epistemologies of disability, but rather clarifying how we come to know disability through the embodiment of methods; rearticulating the question to be about how we produce knowledge, rather than what knowledge is. The embodiment of knowledge or methods in this way shares similarities with Oliver's description of the social model as that which functions as an activist tool of research, rather than a social theory. A critical methodology looks at how access can determine methodology, and how analysis of it can offer disabled and non-disabled researchers an opportunity to evaluate their own research through relational and accessible frameworks (Kafer, 2013). Placing the importance of critical methodology on par with *knowing disability* (relationally) resonates

with Horkheimer's application of critical theory as necessarily "explanatory, practical, and normative" simultaneously.

The following chapters will reveal how different *ways of knowing* are animated through human-machine interactions across speech-to-text systems, and mediated by sociomaterial networks that are in turn informed by disability legislation and collegial infrastructure. Hamraie (2017) usefully defines access knowledge as "a regime of legibility and illegibility, [that] emerged from interdisciplinary concerns with what users need, how their bodies function, how they interact with space, and what kinds of people are likely to be in the world." Thus for Hamraie, positioning disabled users as the *prime* producers of access knowledge signals an inclusive methodology to accommodate multiple and partial users.

To generate first person accounts based on one's own corporeal experience may create an opportunity to produce knowledge beyond the oft-cited empirical studies that claim epistemic authority for all-knowing medical professions. This project does not question the validity of these accounts, but tries to make sense of how disabled researchers encounter their field sites with the support of access workers. More specifically I ask: how do these multiple encounters with real-time captions shape the production of knowledge? Posthumanist scholars may suggest that these encounters are shaped by a distribution of access produced by multiple actors from the labor that is *enacting* access and the technology that *supports* it. In short, the production of access for posthumanist scholars is equated to the decentering of knowledge production. Katherine Hayles's *How We Became Posthuman* (2005) disputes the central position of human subjectivity, as she tracks the changing conditions of liberalism that determine

our persistent understanding of human agency, subjectivity, and their labor.[11] Cary Wolfe (2013) echoes Hayles's contribution to emphasize how the construct of liberal subjectivity for disabled people is located within a civil rights discourse that determines their subjectivity as a "particular and circumscribed type: subjectivity as agency." Even though Wolfe adds that the "fetishization of agency" in the disability studies and the disability community rest on "all sorts of historical, institutional, and strategic reasons," the value of posthuman research serves as a reminder that the strategic rationale that underwrote emancipatory research, and enabled this research in the name of "subjectivity as agency," does not necessarily transfer into questions about disabled and non-disabled subjectivity or agency in academic research itself. Moreover, decentering knowledge production or even adopting a posthumanist understanding of distributed agency, can in turn disavow the labor produced by access workers.

[11] In Hayles's (2005) discussion, the delegation of human labor to the machine is highlighted when she writes: "as a synecdoche for the panoply of issues raised by the relation of Homo sapiens to Robo sapiens, humans to intelligent machines." The panoply of these issues are realized when a cumulative amount of contact with personal technologies (from personal computing to mobile communication) are increasingly mediated through global networks. Reflecting on the smooth transition to cybernetic unity for Hayles is an "interplay between the liberal humanist subject and the posthuman that… has already begun to fade into the history of the twentieth century." The human-machine boundaries have become increasingly indistinct for many users, the following chapters draws on a synthesis of autoethnography and archival research to find that access to technology, particularly assistive technology, is not understood as a disembodied experience, but rather is maintained and completed by an extensive collegial network.

CHAPTER TWO

The Automation of Real-Time Captions: A History of Transcriptive Access, 1956-2017

> A girl stokes its keys languidly and looks about the room and sometimes at the speaker with a disquieting gaze. From it emerges a typed strip which records in a phonetically simplified language a record of what the speaker is supposed to have said. Later this script is retyped into ordinary language, for in its nascent form it is intelligible only to be initiated.
>
> Vannevar Bush (1945)

In May 1983, a short article in the local Rock Island, Illinois, newspaper *Argus* announced a new form of assistive technology for “deaf, blind, hearing impaired” people in the local area (see Figure 2.1). The provision of this new service, now commonly known as teletyping, enabled fifty local residents to directly contact their local emergency services by way of a text-to-text relay system. This new technology allowed an emergency operator—a position most often filled by female typists—to use the text-to-text system to respond to deaf users in the case of an emergency. The systematic collection of assistive technologies in domestic homes, such as the use of closed caption decoders (an early device used to decode television signals into readable texts), emerged with the early development of text-to-text phones for d/Deaf and hard of hearing individuals, thus evidencing the role of captions and telecommunication in the popularizing of assistive technologies.

Building on the political stakes of methodology as outlined in the previous chapter, I consider the development of assistive technology in parallel with Deaf culture to examine how the human labor of transcribers, stenographers, and interpreters coexist with this technology. Despite its rich history for social historians, labor historians, and historians of technology, Deaf Studies scholars associate captioning primarily with assistive technologies, not with aspects of d/Deaf history and culture, thereby denying the humanist possibility of studying captions as an object actively shaped by what Baumann and Murray call “Deaf gain” (Baumann & Murray, 2014). The multitude and variety of these gains are suggested by disability historian Katherine Ott (2002), who argues that the histories of assistive technologies, like prosthetic devices, would be best described by playwrights rather than by historians themselves (p. 1). Likewise, the history of transcriptive labor is best told from the position of access workers. To negotiate their work in conjunction with disability studies, we can consider how emancipatory research and related methodologies have historically privileged the disabled subject’s voice at the expense of the access worker’s labor. The inclusion of stenography and transcriptive work in the concept of Deaf gain situates the *production* of access as an important object of study in and of itself.

This newspaper clipping from the *Argus* was found in the archives at Gallaudet University, the leading institution for d/Deaf education based in Washington, D.C. It might be assumed that the Gallaudet archives would foreground historical documents that chronicle the rise of assistive technologies for deaf people, yet, along with similar documents on assistive technologies in the collection, the newspaper clipping cited here

is considered by Gallaudet's archivists as external to Gallaudet's collection on the history of Deaf culture.

This highlights the fact that in the Gallaudet archives, the development of assistive technologies for d/Deaf users shares an uneasy alliance with Deaf culture, which prominently organizes the understanding of Deaf history around a *shared linguistic and cultural center*, not around a central lack in ability (Padden & Humphries, 1999; 2006). As leading Deaf linguistics and education scholars Carol Padden and Tom Humphries (2006) suggest, this cultural center affirms "[t]he linguistic and social lives of Deaf people [which] have provided us with unique and valuable ways of exploring the vast potential for human language and culture" (p. 180). Histories of Deaf culture foreground this language-oriented "Deaf center" to include Deaf schools and clubs they attended, the communities they joined after leaving such schools and clubs, the poetry and theater they performed and curated, and finally the formulation of vocabulary to describe Deaf identification (Padden & Humphries, 2006). Thus, the focus on assistive technology is seen to interfere with the cultural status of sign language as it is used by many members of the Deaf community.

The oft-cited relationship between technology and culture outside of this "Deaf center" has frequently resurfaced in ethical debates: in accusations, for instance, of bioengineering with the development of Cochlear Implants for d/Deaf children from both the medical and Deaf community (Maudlin 2016; Blume 2010). Cochlear implants, a late-twentieth-century design, gave deaf patients some hearing by directing sound through electrodes implanted into the cochlea. The ambivalent relationship between the communities supporting and opposing such technologies has revealed the ways in

which “progress” towards a technocratic solution has threatened, as Laura Mauldin writes, “other ways of being”, implying that “communities may be lost” (Mauldin 2016; Padden & Humphries, 1991). The potential loss of these “ways of being” are of particular concern when “hearing parents” are the primary consumers of cochlear implants, rather than d/Deaf persons themselves (Maudlin 2016). Access to early linguistic development from a young age is proven to be fundamental for language acquisition for d/Deaf children, which is often not provided by the medical community’s understanding of implantation procedures (Padden & Humphries, 2005; Humphries et al. 2012; Power & Leigh 2004). This perhaps explains why, for d/Deaf users, the role of assistive technologies – from hearing aids to cochlear implants to transcriptive technologies such as closed/open and real-time captions – have largely been assumed to be secondary to the cultural identity of ASL users.

By contrast, for many people with disabilities, access to assistive technologies including personal computers has allowed emergent social groups to convene around newly adopted technologies, affording particular expressive extensions of their political, legal and social identities. In Elizabeth Petrick’s *Making Technology Accessible* (2015), the central formation of these three aspects of technology have served as integral to enacting civil rights. As Petrick suggests, “for these rights to be realized, access had to be built into technology” (p. 4). Therefore, the ways in which technology aligns with civil rights often holds a fraught, conflicted space for both those who construct their d/Deaf identity on the premise of a cultural and linguistic center, as well as those with disabilities who have directly employed technology to enact their rights. For those who reside on the cultural or technological periphery — such as, for example, non-ASL users

and people who have been deafened later in life due to accidents or illness—the significance of technology has a somewhat messy relationship to accessible means of technological intervention.

The location of technologies of transcription on the periphery of the main cultural formations of Deaf communities and sidelined in favor of more primary technologies and language practices (like ASL) has resulted in an uneasy silence from many in the community. The history of captions as a form of assistive technology has rarely been studied from the humanist perspective of Deaf studies, but has also been largely ignored (until recently) by scholars in critical disability studies. This study then, not only attends to those who use assistive technology on the periphery of established cultural communities, but considers the individuals called upon to situate the history of captions. In this chapter, I focus on particular sites of captioning to articulate an understudied practice that neither maps neatly onto the history of Deaf culture nor onto accounts of disabled people identifying with technologies of access. Here, rather than thinking of access as a set of pre-established conditions, this project seeks to understand access as an emergent historical event and mode of political production.

To this end, the sociomaterial maintenance of *access* at the site of captioning foregrounds a complex human-machine dialogue mediating between caption providers and the readers of accessible texts. This is further complicated by the necessary overflow of assistive technologies into publics for whom they were not intended, surpassing what historian of technology Mara Mills (2010) has called the *assistive pretext* (p. 39) of such technologies (also see Ellcessor, 2012). This "excess" of access is certainly at issue in the case of broadcast captions, which have been variously taken

up by non-deaf viewers. Perhaps more unorthodox is my view here that the universal roll out of such technologies implicates not only their unplanned users, but also the subject positions and practices of those whose labor is necessary for the deployment of what are too-often considered to be neutral or transparent technologies. In this process of wider applicability there is not only increased risk that the value of access workers' labor will become unevenly distributed, but that the nuances of sound to text transcription valuable to a Deaf and hard of hearing audience will be lost.

Thus, in this chapter, I argue that a historical recovery of captioning systems must not only contend with the ambivalent relationship shared between assistive technology and Deaf Culture, but also must consider both the invisible users *and* hidden labor that is required to maintain both text-to-text and speech-to-texts systems at large—an aspect of the histories of assistive technology that, despite the best efforts of feminist historians of STS, often goes unremarked in the context of disability history (Cowan, 1983; Wacjman, 1991). Ironically, it is not in archives of Deaf culture where these instances can be found, but rather, like in the case of the article from *Argus*, comes from an “Emergency & Disaster Planning” archive. As it happens, emergencies are situations where the mandate for assistive technologies and the many specified and unspecified participants around such technologies, come to the foreground.

Anxiety of Automation: *Manning* the Emergency Lines

Emergency Communication Systems
— Ary 5/5/83

ARGUS
ROCK ISLAND, IL
PUBL/S JN-SA
CIRC/24,546

MAY --5-83

Teletypewriter goes 911

Deaf, blind or hearing impaired users of the teletypewriter, or TTY, will find dialing for emergency assistance easier from now on. Instead of typing a special seven-digit number as they did in the past, the estimated 50 or so users can now get emergency help by tapping out 911 in areas served by that exchange and 794-9111 in other communities. Looking over the TTY at RI-COMM headquarters are, from left, Beth Matton, Moline, assistant director; Ed Dow, director; and Sheriff Gordy Powell.

Argus Photo by Phil Cunningham

Figure 2.1: [image description] The image above, taken ca. early May 1983, depicts a fading newspaper article with a small headline: “Teletypewriter goes 911.” The white female writer central to this image is flanked by two white men overseeing her labor at a stenography machine. The woman’s face is obscured with her attention directed towards the machine in front of her. In the background, a small placard depicts: “911, Emergency” with “fire, police and medical” listed on the right. Additional machinery is shown behind the female writer. Published in the *Argus* [Rock Island, Illinois] (May 5, 1983). From the Deaf Collection and Archives, Gallaudet University.

In Figure 2.1, the figure of the “female writer” flanked by male supervisors can be found in dozens of similar articles announcing the availability of Teletype: they feature women, seated before their machines, ready to respond to Deaf users. To offset the anxiety of partial human-machine automation relating to the emergence of text-to-text systems, local and national media continued to frame these interactions as ‘manned’ by

docile female workers. For example, in Figure 2.1, the female stenographer, Beth Matton, is positioned to avoid the gaze of both men as well as that of the photo’s viewer; instead, she is turned away, in the midst of her labor, waiting to respond to incoming instruction.

The passive rendering of Matton’s posture here gestures toward a genealogy of gendered labor that was largely associated with practices of office work following the Second World War. The employment of women in office spaces is evoked in this image as an ideal of the middle-class values of work. In Michelle Murphy’s *Sick Building Syndrome*, the work of stenographers is shown to extol middle class values by comparing their labor with the “playing of the piano.” As Murphy writes: “[these women were] also to subject their bodies to the routinization of rationalized machinery” (2006, p. 42). In this way, women's entry into the office was affirmed by their entanglement with the machinery. The assumption of these entanglements was that the undertaking of feminized relations with machinic labor was simpler, repetitive work, thus designed for women (Murphy 2006; Misa 2011; Hicks 2017).

The introduction of emergency planning for d/Deaf users and emergency workers during the early 1980s begins to foreshadow the affective labor later required from stenographers working in education and the captioning of media content. In the image above, the compact depiction of Beth Matton’s composure also follows similar midcentury labor politics to convey her subordinate role in the office. When the figure of the stenographer enters their office, in this case to support the frontline of emergency services, the stenographers are expected to fulfill their role quietly. The performance of these as supportive roles was understood as a necessary part of one’s civic duty

(Dahlgren, 2006). To imagine what civic duty might mean for captioners, media and communication scholars have suggested that both stenographers and interpreters are mandated to “witness” (and thus be held responsible to) the events they are to transcribe (Ellcessor, 2015, p. 590). As Ellcessor further explains: “Witnessing, as a way of conceptualizing media experience, is not just “seeing”, but involves producing discourse about what was seen, linking representation back to possible political participation” (p. 591). In the United States, witnessing such events for either the transcriber or the viewers still remains a rare occurrence, but for the transcribers, this work comes with civic responsibilities associated with the genealogy of affective labor (Hardt, 1999). When the rare occurrence of these signed events becomes visible to an unintended audience, such as those precipitated by emergency situations like the landfall of the 2012 Hurricane Sandy, sign language interpreters have found themselves exposed to public scrutiny when delivering civilian news for the local Deaf community. ASL interpreter Lydia Callis, who was depicted side-by-side with the New York City mayor Michael Bloomberg in his deliverance of emergency procedures leading up to Hurricane Sandy, was openly criticized and mocked. As Ellcessor recounts, Callis was described as “too feminine, too flamboyant, too different, and too distracting.” Even though sign language interpreters are required to affectively embody the delivery of their signing through facial expression, the appearance of authorship for non-American Sign Language users was considered and framed as a parody of the official delivery by the Mayor. Thus, if the interpreter’s “flamboyant” affective presence is considered a distraction, the paradoxical expectation is that an interpreter should embody discipline, discreteness and passive efficiency, while simultaneously remaining legible to a Deaf

audience.

The visibility of the stenographer's labor follows a similar work ethic – that is, one that minimizes the performativity of their labor behind their keyboard. In his book *Closed Captioning* (2008), the mass communication scholar Gregory Downey comments on the universal availability of real-time captions during the events of September 11, 2001. Downey found that viewers beyond the d/Deaf and hard of hearing communities relied upon real-time captions to watch the unfolding of such national events in public spaces, ranging from noisy airports to quiet hospitals. Unlike closed captions (associated with the majority of media content), the events of September 11th unfolded in *real time with real-time captions*, to which most audience members would not have had much previous exposure. The intense pressure of supplying real-time captions for this newfound public audience over the subsequent days revealed not an adequate system of speech-to-text fluency, but rather an aging assemblage of stenographic tools comprised of pre-1900 machinic design and a reliance upon the technology of shorthand to keep up with the rapid pace of the information economy in the late-twentieth and early-twenty-first centuries.

Furthermore, the exhausting schedule required of the few available stenographers on duty during this period, ninety percent of whom were women, demanded that they start their shift without the key preparation of their job dictionary. Maintaining the job dictionary, a software program designed to convert stenoform (a method of digital shorthand) into legible text, is vital to the pairing of stenoform with new vocabulary (Stanley 2002; see also chapter 2). The lack of upkeep of the stenographer's dictionary was coupled with an emerging set of discursive needs being

produced simultaneously on-air. The more that real-time captions began to break down on-air, the more visible the stenographer became as the key composer of the text (Venuti 2008).[12] In other words, the translation of speech-to-text only remains invisible when the human labor remains hidden, and the human labor only remains hidden when it is executed without error.[13] In Media and Communication studies, how translations are mediated is also understood to have varying degrees of "fluency bias"—whereas the discreteness of these practices is a mark of "quality" (Venuti 2008; Ellcessor 2015).

In most European countries, news interpretation is not uncommon and can be accessed through digital television allowing d/Deaf and hard of hearing viewers to choose from a menu of options featuring sign language, captions, or audio description provided for those with low vision (Neves, 2007). In the United States, by contrast, American Sign Language (ASL) is infrequently used to curate media for popular consumption. Open and visible access to ASL is only seen by the general public in the event of an emergency.[14] Visibility politics aside, in the US the provisions of real-time captions for national news are now required by the Telecommunications Act of 1996 and the 21st Century Communication and Video Accessibility Act (2010). The Federal Communication Commission (FCC) requires "broadcasters and cable operators to make

[12] For further comment on this aspect of (in)visible labor see Lawrence Venuti, *The Translator's Invisibility: A History of Translation* and Elizabeth Ellcessor, "Is There a Sign for That? Media, American Sign Language interpretation, and the Paradox of visibility."

[13] This seemingly high figure closely parallels with the number of women working as court reporters in 2011. (National Survey of Judges and Court Reporters). From 89% of those who were surveyed during this period, eighty-three percent of the women identified as over 40-year-old. (NJCR).

[14] In Europe and the United Kingdom, the onset of captions (known as subtitles) have shared a similar timeline to the United States' development of the "line 21" system. The study of subtitles in Europe is closely aligned with Translational Studies, and the study of accessible media content has paralleled the need for audio description (AD) with dubbing and open captions. Both captioned texts and audio translation are organized according to their intralinguas output across multiple European countries.

local emergency information accessible to persons who are deaf or hard of hearing, and to persons who are blind or have visual disabilities" (FCC).

Even when policies put forward by the FCC provided support for the d/Deaf and hard of hearing community, this chapter has revealed an ongoing tendency to minimize women transcribers' roles. Thus, it is significant to trace the origins of the human labor that supports text-to-text transcription, as shown by Beth Matton's interaction with her work (above) to highlight examples drawn from the "Emergency and Disaster Planning" collection in Gallaudet's archive. Even as Gallaudet University advocated for captions support during the late fifties, it was evident in this collection that the figure of the stenographer only appears during the discourse of emergency planning. In the events of emergency, the public sphere is inclined to imagine human labor protecting their local and national communities. Throughout this chapter, and through the dissertation more broadly, I trace the emergence of mid- and late twentieth-century labor practices which largely informed the development of real-time captions, and track how accessibility functioned, and continues to function, across information economies, ranging from automated captions to the concurrent production of visual descriptions. The (in)visibility of women's labor in the *Argus* clipping thus highlights the thematic interventions spanning across this work.

To examine the full social, political, and technical significance of the practice of transcribers, who I reconceptualize as "access workers" in Chapter four, I compare genealogies of care and access work and how the development and maintenance of real-time access for d/Deaf and hard of hearing individuals struggles to hold its own in a system that, unlike its European counterparts, offers no benefits for the hearing

population. The absence of what Mara Mills calls the *assistive prefix* – when an accessible medium of communication, such as closed captions, can meet the needs of the majority – perhaps underscores the reasons why members of the Deaf communities so easily situate assistive technologies in the background in favor of ASL as the singular index of their linguistic and cultural identity.[15]

From Closed-Captioned Literacy to National Pedagogy

In 1958, the US Congress passed the first legislative bill related to assistive technologies, which sought to provide captioning services for d/Deaf and hard of hearing users and enable them to access federal libraries across the nation. Two years earlier, the president of Gallaudet University shared his support of this bill in an internal memo with their faculty and students (see Figure 2.2). Contrary to the received wisdom among historians of disability, many of whom typically critique the emergence of a legal rights framework for people with disabilities as a neoliberal phenomenon (McRuer, 2006; McRuer, 2018; Puar, 2017), this midcentury bill predates much disability legislation established in conjunction with the Americans with Disabilities Act (1991), the Telecommunication Act (1996) and the 21st Century Communication and Video Accessibility Act (2010). Indeed, several years before this bill, two d/Deaf educators, Edmund Boatner and Clarence O'Conner, established a voluntary organization known as Captioning Films for the Deaf (CFD). Boatner and O'Conner's aim was to provide open caption films for d/Deaf and hard of hearing viewers. By 1958, the two educators

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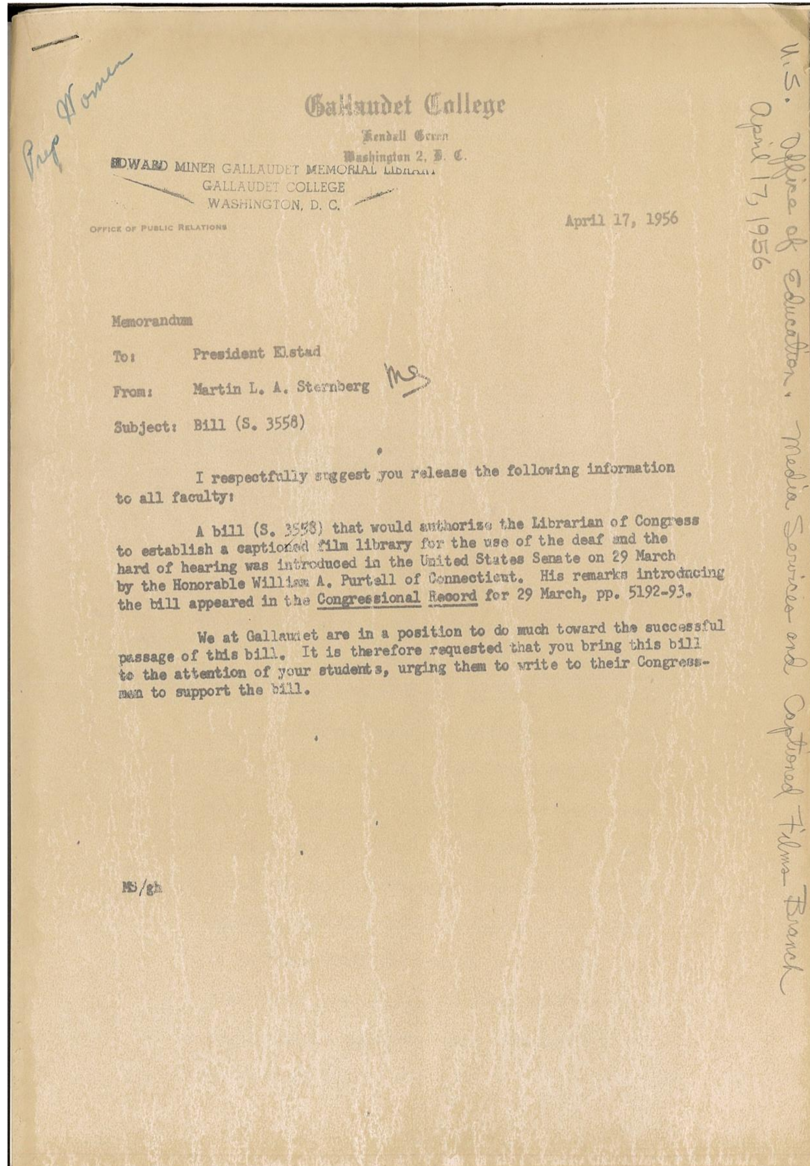
[15] See Mills (2010). The study of speech-to-text translations (as social texts) in this project is framed by the emerging discipline of Critical Access Studies, which as Hamraie (2017) describes, takes its cues both from Disability Studies and Science and Technology Studies and, in particular, its formulation of technoscience.

provided captioned films that were distributed among members of Deaf clubs and Deaf schools (Downey, 2009). It was not until twenty years later, in 1977, that the transfer of a nationwide collection of smaller libraries merged to form the National Captioning Institute (NCI) in Washington DC. The NCI's newly centralized library came to regularly supply films that ranged from classic films, such as *Gone with the Wind*, to educational and instructional films intended for members of the Deaf community (Americans with Disabilities Act).



Gallaudet College
Kendall Green
Washington 2, D. C.

EDWARD MINER GALLAUDET MEMORIAL LIBRARY
GALLAUDET COLLEGE
WASHINGTON, D. C.

OFFICE OF PUBLIC RELATIONS

April 17, 1956

Memorandum

To: President Elstad

From: Martin L. A. Sternberg

Subject: Bill (S. 3558)

I respectfully suggest you release the following information to all faculty:

A bill (S. 3558) that would authorize the Librarian of Congress to establish a captioned film library for the use of the deaf and the hard of hearing was introduced in the United States Senate on 29 March by the Honorable William A. Purtell of Connecticut. His remarks introducing the bill appeared in the <u>Congressional Record</u> for 29 March, pp. 5192-93.

We at Gallaudet are in a position to do much toward the successful passage of this bill. It is therefore requested that you bring this bill to the attention of your students, urging them to write to their Congressmen to support the bill.

MS/gh

Figure 2.2 [Image Description]: Internal memo from Martin L.A. Sternberg, Office of Public Relations, Gallaudet University, dated April 17, 1956. The memorandum was shared with the students and faculty at Gallaudet College to motivate support for Bill 3558. Although this Bill wasn't passed until several years later, William Purtall of Connecticut proposed legalization that would ensure the captioning of films at the Library of Congress, and later the federal libraries across the nation.

The National Caption Institute's film library was initially inspired by a "talking books" service for blind people founded in the Library of Congress in 1931. This service

was pioneered by the library's in-house Adult Blind Project, now known as the National Library Service. Their first collection of talking books consisted of the Bible, national documents of historical importance (including the Declaration of Independence) and the works of William Shakespeare. Both of the project directors Irwin and Herman Meyer wished to catalogue a series of talking books with a "notable" purpose (Rubery, 2015, p. 66). The titles featured in the first collection, as Matthew Rubery writes, "represented edifying material conducive to self-improvement and good citizenship" (p. 69). Similar to speech-to-text systems, the political life of many early Talking Books found discontent among both blind and sighted readers: sighted readers viewed the medium of Braille as being "separatist" media, while blind readers felt talking books embodied "a philosophy of normalization" (Mills, 2012, nb). Despite these differences, the Library of Congress faced additional difficulty securing printed texts still protected by copyright laws for audio reproduction. Furthermore, exclusion from print became apparent when federal programs would often determine the *reading practices* of those with disabilities. The gradual uptake of works of fiction were only released to readers with a certificate of disability, a constricting and diagnostic-embedded certification that amounted to a type of "reading by prescription" (Mills, 2012, nb) Even in the late 1960s, the Blind Adult Project expanded this certification process to include those with "print handicaps" and "unable to read normal printed material" (Mills, 2012, nb).

In 1958, Senator William Purtell of Connecticut sponsored the first bill on captioning to establish Caption Films for the Deaf as a fully funded governmental agency (Handman, 2012). The federal funding in the early stages of captioning history was limited due to the high labor cost and the price of stenographic equipment. When

the library catalogue for captioned films for the Deaf was centralized over to the National Caption Institute, the number of d/Deaf individual able to subscribe to films from their local library substantially decreased. Thus, in 1963, a second piece of legislation was passed to authorize the Caption Film for the Deaf to acquire and caption educational films. The first of these educational films was *Rockets: How They Work* (1962), produced for middle school d/Deaf children. As an object of civilian defense training within Cold War culture, the teaching package included questions for students pertaining to the distinctions between military and non-military rockets. Circulating the captioned films (via mail order) among the Deaf Schools and Clubs across United States was still not enough to secure further readership.

In 1975, the Education for All Handicapped Children Act guaranteed support for public education to students with disabilities. This accelerated the use of Computer-Aided Real-Time Translation (hereafter CART) and its widespread use in classrooms across the US. Over the next fifteen years, a group of legislative pieces were integral to securing CART, most famously the Americans with Disabilities Act of 1990 but also the Americans with Disabilities Act-inspired rewrite follow-up to 1975 Act, now known as the Individuals with Disabilities Education Act of 1990. These acts in many ways repudiated the controversy over Section 504 of the Rehabilitation Act of 1973, which was supposed to ensure that children with disabilities had equal access to education but which did not provide this support.[16] Although governmental programs with federal funding could not

[16] In 1977 disabled people and disability rights activists, bolstered by other social movements during this period, responded against Section 504, resulting in an outbreak of nationwide protests across United States. In the Bay Area, a group of 150 disabled protesters occupied the fourth floor of San Francisco's Federal Building for twenty-five days. Even through racial segregation was repealed by the Supreme Court to conclude that "separate was never equal," this doctrine was still an ongoing challenge for

discriminate against disabled students, an awareness galvanized in large part by the Great Society programs of the late 1960s, these programs did not address specific or individual needs, often at both the federal and state levels. For instance, in its broad application, the Education for All Handicapped Children Act of 1975 did not recognize that the specific needs of Deaf persons as distinct from those with other or multiple disabilities. (Foster et al., 2003). The availability of CART was an option for d/Deaf and hard of hearing students not fluent in American Sign Language and was specified in the Americans with Disabilities Act as an “appropriate auxiliary aid and service” (Stinson et al. 1999). In 2004, almost thirty years later, the Individuals with Disabilities Education Improvement Act was signed into law by George W. Bush in order to secure children’s access to “assistive technology” in public (and mainstream) education (Foster et al., 2003; Downey, 2008) Therefore, the availability of CART technology in/across classrooms nationwide supports the objective of integrating d/Deaf and hard of hearing students in public education. Nevertheless, for those students, access to state sponsored educational support remains inconsistent across states borders**.**

Building on these legislative successes, the Institute began their nationwide recruitment drive by investing in a pedagogy of captions for d/Deaf, hard of hearing, and hearing children (and adults) in their domestic spaces. Many of these took place before the passage of the Americans with Disabilities Act. For example, to garner new constituencies for such technologies beyond the d/Deaf and hard of hearing population, beginning in the mid-1980s, the National Captions Institute distributed a series of leaflets that framed captioning as “The New Reading Teacher” to advocate for improved

individuals with disabilities, and the mass sit-in proved central to securing passage for the American with Disabilities Act nearly twenty years later.

reading literacy among hearing children (see Figure 2.3). The development of new reading practices, as supplemented by new computer and closed-circuit technologies, were encouraged and approved by leading educational bodies, including the National Education Association. To secure the future of media captioning and develop a range of captioned programs, the institute had to position itself to appeal to the majority audience.

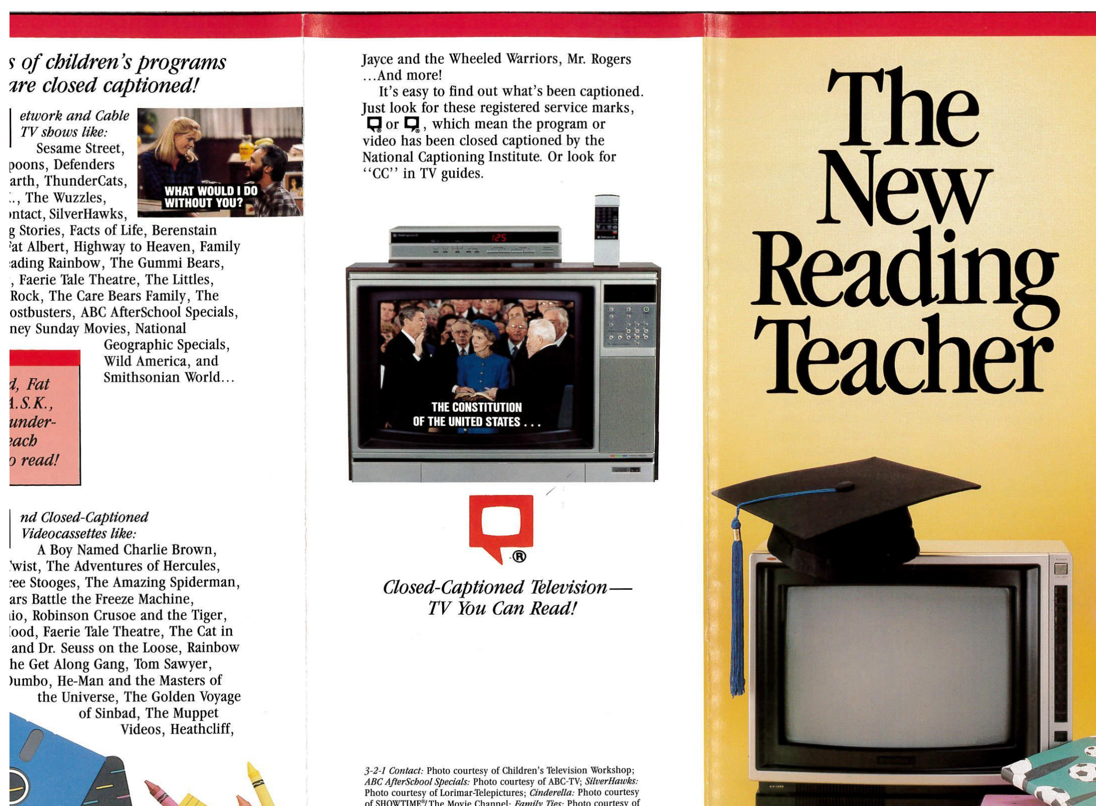


Figure 2.3 [Image Description]: This brochure for closed captioning technology, printed ca. 1986, features texts introducing "The New Reading Teacher," which is coupled with black graduation mortarboard placed on top of a television set. In the center of this image – an early depiction of closed captions icon – offers the promise, "Closed-Captioned Television – TV You Can Read!" On the same page: another TV set reveals captions "The constitution of the United States…" with Ronald Reagan being sworn in as the 40th president of United States, while another features the popular mid-1980s NBC sitcom *Family Ties*. A 5 1/4" floppy disk and set of pink and yellow crayons connote objects relating to childhood's education.

The disability studies scholar Jay Dolmage (2005) has suggested – in an echo of Mara Mills's notion of an *assistive prefix* – that captioning can only achieve full success when the majority can identify changes to their own advantage (also see Zdenek, 2015). The emerging variation of "good captioning" in this chapter unveils some of the tensions involved with an assistive prefix by paying attention to the uneven geography of speech-to-text systems for d/Deaf and hard of hearing users across the United States. As I have suggested earlier in this chapter, this is true not only for captioning's recipients but also for its laborers. Akin to court reporters, CART providers are expected to transcribe spoken speech (and nonverbal cues) into near-verbatim accounts as *disinterested subjects*. In similar quarters, the somewhat distant approach of neutrality has been compared with the practices of objective visual description for blind people and those with low vision. In their training, stenographers are taught to reserve certain boundaries of neutrality when translating both spoken speech and nonverbal sounds for the discursive needs of Deaf students.[17] In his book *Visual Made Verbal*, Joel Snyder (2014), the prominent educator of audio description, remains committed to the notion that caption providers practice objectivity. Drawing on his own teaching guide, Snyder requests that his (often voluntary) tutees observe their visual surroundings as moving from right to left, clockwise, and so forth. In other words, stenographers are taught that the reproduction of spoken speech into readable texts has no political life. The

[17] The eventualities of these descriptive encounters as somewhat neutral have been questioned in Donna Haraway's "A Cyborg Manifesto" (1984): "The boundary is permeable between tool and myth, instrument and concept, historical systems of social relations and historical anatomies of possible bodies, including objects of knowledge. Indeed, tool and myth mutually constitute each other" (Haraway 1991, p. 19). Rather than viewing the socio-material production of transcription as a neutral enterprise, we can situate stenographers' partial automated labor as a means to produce knowledge for their d/Deaf and hard of hearing readers.

recommended absence of political will as synonymous with being discrete in the classroom therefore assumes the protection of students' privacy.

By 1975, over half of roughly seven thousand court reporters with membership of the National Shorthand Reporters Association were women (Downey, 2008), though these tended to be the younger constituents, since men "held most senior jobs and ownership positions" (p. 142). By 2011, the membership of women court reporters eclipsed the previous figure, representing nearly ninety percent of those surveyed during this period. In the same survey by the National Survey of Judges and Court Reporters, eighty-three percent of the women were identified as over forty years old (NJCR). In turn, the introduction of the dictionary software (known as the Computer Aided Transcription system) was initially believed to attract a younger cohort of workers with considerably less experience in the classroom. The demands of CART were even more extreme: "writing in real time for a live reader required an entirely new mindset and writing strategy" (Gluzman, 2014, p. 20). Similarly, stenographers with experience are more often allocated to d/Deaf students who "*screen read*" in real-time, thus, these students depend on a near verbatim account with little room for transcription errors. Stenographers thus have to make a choice to prioritize the real-time comprehension of their clients, or "consumers," facilitating their access to what is being said, whereas young CART operators might be tasked with producing non-verbatim accounts as a form of in-class note-taking for lower pay.

Feminist Ethics of Access

These archival discoveries, and this chapter more broadly, bring to the fore examples of a professional shift towards the dematerialization as well as

dehumanization of labor – that is, knowledge work with digital stenoform – provided by a stenographer behind the scenes. The anxiety around full automation not only foregrounds the figure of the stenographer and their labor, but reveals an entanglement between the d/Deaf community and broader technological networks. Examining these networks reveals the understanding of access immortalized in the Gallaudet archive, through which critical disability studies, Deaf studies and feminist labor, when read together, emerge as disciplines that challenge normative labor practices.

My incorporation of assistive technology into discussions of the feminist ethics of access is made possible in part by the work of historians of disability studies and Deaf studies and their commitment to challenging modernist conceptions of normalcy (Davis 1999). This is an important point because one could falsely assume that there is an automatic or presumptive alliance between disability studies and Deaf studies. As summarized earlier, the draw of linguistic practice for the Deaf community, and not technological intervention, has shaped Deaf activist's approach to and demand for inclusive civil rights. When access to technologies are paired with the privileged expectations of a hearing audience, for example, there is often resistance from the Deaf community. By contrast, foregrounding an intersection where feminist ethics meets access to produce digital access within the postindustrial economy is to put forward an alternative model of intersectional and collegial intimacy.

In exploration of such alternative models, critical disability studies interrogates the critical limits of the biopolitical schema in order to dismantle the oft-cited relationship between disability and assistive technologies as one of symbiosis. The repeated iteration of these symbiotic relations is to be found somewhere between humanism and

post-humanism, perhaps best exemplified by the question that Gregory Bateson (1972) asked his own graduate students: if a blind man's cane is a part of the man, then where does this embodiment end? Halfway up the stick? Upon contact with the stick? Bateson challenged his students' conception of human boundaries as defined by epidermal surfaces. When working with the d/Deaf and hard of hearing community with a diverse range of linguistic necessities – the epidermal surfaces of transcriptive communication become increasingly complex, mediated and distributed across multiple bodies and platforms. For Bateson and Katherine Hayles (2005), the pairing of the man with his cane is understood as a unified feedback system that loops between his embodiment with the cane and his environment.

To transcribe spoken speech, humanist scholars have drawn on phenomenology to describe the experience of transcription, whereas post-humanist scholars consider the production of transcription as an integral part of human-machine dialogue. In this view, stenographers have to construct and pair their own handwritten steno codes with their dictionary software. Textual meanings are assigned to non-diegetic sound. With this in mind I ask, how can a feminist ethics of access account for a speech-to-text feedback loop performed by stenographers? Hayles (2005) described the production of texts as *always being instantiated* by a medium. To study the labor of transcription as a medium, as history of technology scholar Lochlann Jain (2006) has done, clarifies the position of clerical workers (including stenographers and typist) as not just agents working upon a medium from the outside, but themselves "the medium of the medium, [the agent who mediates] voice to text, content to inscription" (p. 112). Jain recognizes that the collapse of the stenographer with her machine is consistent with the fantasy

that removes the female figure to ensure the erasure of her labor by male workers. The instantiation of the medium has been realized through a host of empirical studies at the University of Rochester and Carnegie Mellon, which analyze both the speed of production and readability of real-time texts. These studies were marked by ongoing design issues, including temporal lag between the utterance of spoken speech and the production of real-time captions (Kushalnagar, Lasecki, & Bigham, 2014). Following Jain's exploration of the increasingly gendered role of the typists as a medium of office work, we can assume that stenographic assemblage is medium of access. From my own research it is evident that stenographers find multiple cross-functional roles to fulfil in this assemblage – as emergency worker, newscaster, and a producer of a national reading program for young children. To situate these supportive roles within a feminist ethics of access is to reconsider how dependency has been important to the distribution of agency when providing access for d/Deaf and hard of hearing consumers.

To inform our understanding of a feminist ethics of access for those who practice the access to transcription, we have encountered the female stenographers providing forms of labor for emergency services and a national pedagogy. The gendering of these roles as either a call of civic duty or a collapsing of the stenographer's labor with their machine both draws on, and intervenes in, the scholarship on the historical underpinning of the midcentury innovation in the conception of assistive technology. The growth of assistive technologies, as they are utilized by disabled users today, is attributable to their development as part of a military program for the rehabilitation of injured veterans from the Second World War (Serlin 2004; 2006; 2015). The advancement of non-civilian medicine during this period not only allowed veterans to

adjust to their new lives, but offered other people with disabilities access to advances in technology and rehabilitation. With the introduction of rehabilitative medicine in particular, many disabled people saw an improvement in their living conditions, but the downside was the emergence of an associated discourse of normalization that became complicit with a Cold War desire for the "*perfectly average"* body (Serlin, 2004; Creadick 2010). Importantly, the perfectly average body indexed the absence of the abnormality (Ott, Serlin, & Mihm, 2002). To offset such Cold War anxieties, the prosthesis masked these concerns by extoling new technologies as the restoration of a protestant ethic and their commitment to the Spirit of Capitalism (Weber, 1905). Deaf workers who were not directly recruited by the war efforts presented a different narrative of the war years, which was one of active employment. The divergence of employment opportunities for Deaf workers and disabled workers presents a conflicting genealogy of labor, and how these factors present themselves is informed by access to labor and technology. In conjunction with recent disability legislation, the changing working conditions for Deaf persons from manual labor to other forms of work was pioneered by Deaf institutions and their commitment to technical training. More recently, medical anthropologist Michelle Friedner (2013) has continued the conversation around labor activism to comment on the working conditions for Deaf workers in India. Friedner's familiarity with d/Deaf Culture in the United States has allowed her to draw on her own experience to acknowledge the outside prevailing narrative of "stigma, deprivation and poverty." The focus on labor activism for Deaf workers here is intended to foreground the shift from industrial work to postindustrial (knowledge and information) work, and more importantly how these shifts created a growing demand for Deaf workers to work with access

workers (particularly sign language interpreters) in a post-industrial economy (Hardt 1999; Hardt & Negri 2001; Ahmed 2004; Dowling, 2007).

Reassessing Affective Labor Before the Post-Industrial Era

For some Deaf workers, the progression to a post-industrial economy created individual workers alongside a growing dependency that is mediated by complex networks of d/Deaf institutions, as well as Deaf culture and disability legislations. But long before the postindustrial era, Deaf workers existed in precarious positions throughout the Great Depression. Work conditions were not eased by President Roosevelt's New Deal program, however. Rather, the New Deal programs frequently equated Deaf workers with "handicapped" workers and assigned them to the status of the "unemployable." Yet during the interwar era there were interesting historical exceptions to this. Deaf studies and disability studies historians Susan Burch, Sarah Rose, and Robert Buchanan found that Deaf students from Gallaudet University were successfully graduating to employment in the Goodyear's factory in Akron, Ohio. (Burch 2004; Buchanan 1999; Rose 2016) The University's commitment served as a testimony to labor activism during this period, and factories located in the Northeast region became convinced that Deaf workers were ideal candidates for industrial labor. At the peak of Goodyear's relationship with Deaf employees, several hundreds were employed for their services even though other workers were experiencing the impact of economic downturn. For d/Deaf historians, Goodyear's employment of Deaf workers was an example of "Deaf gain," an approach that recognizes deafness as something that is gained, rather than the "loss of hearing" (Baumann & Murray, 2014). At the Goodyear factory in particular, and during this period more broadly, Deaf workers were known and

prized as *silent workers*, referring to how their signing hands were preoccupied (or silenced) by their manual labor, rendering them unable to communicate with their Deaf peers, and thus restricted from engaging in idle conversation (Morton, 2014). Deaf workers were additionally resistant to forming a political coalition with other minority groups, namely blind and disabled workers. Their commitment to labor activism recognized the growing need to cultivate a collective status shaped by their linguistic identity. In his book *Enforcing Normalcy* Lennard Davis (1995) suggests these separatist tendencies demonstrated a chance to foster their own community away from the prevailing culture of audism. With scores of employment opportunities at Goodyear and neighboring factories, the Deaf workers gained insight into how major employers understood the value of their labor. The onset of the Second World War further confirmed the value of Deaf labor, but the Deaf workers were positioned alongside women at the point of their admission into the workforce.

Although their admission was not a smooth transition, both social groups were interwoven in the genealogy of welfare dependency.[18] This is to say, Deaf and women workers were not immune to the stigmatization of welfare support constructed by the New Deal program, hence why their collective admission was anticipated during the Great Depression. From the bleak provisions of the Poor Laws to the institution of the Social Security Act in 1935, welfare dependency continued to hold negative connotations of stigma and poverty (Schweik, 2009; Rose, 2016). Responding to these

[18] See also: Fraser and Gordon, "A Genealogy of Dependency," pp. 321–22. Notions of dependency would continue to shift in the postwar era. Jennifer Mittelstadt, "'Dependency as a Problem to Be Solved': Rehabilitation and the American Liberal Consensus on Welfare in the 1950s," *Social Politics* 8 (Summer 2001, pp. 228–57; and Jennifer Mittelstadt, From Welfare to Workfare: The Unintended Consequences of Liberal Reform (1945-1965).

adverse associations, political scientist Nancy Fraser (2013) described those with employment as praised for their economic independency, and those who relied on welfare support were condemned for being morally and psychologically dependent (pp. 96-97). The dyad of dependency for these social groups reflects Deaf workers' desire for economic autonomy, and that women were encountering the growing demand of work beyond familial kinship and care practices (Feder & Kittay, 1999; also see chapter Three of this dissertation). Even though the women and disability rights movement was pivotal for many members of oppressed groups to gain admission into the workplace, the attainment of "*economic autonomy"* and "*freedom"* for d/Deaf and women workers was achieved with cost, namely their subjectivity. Padden and Humphries have stressed the importance of cultivating linguistic and cultural centers for Deaf community, but the maintenance of these cultural connections to linguistic centers is only made possible through market relations. Workers' transition from an industrial to post-industrial economy not only reveals the complexity of Deaf education and employment with the wider population, but underlines that *access* to education and employment are increasingly mediated by market relations. Access for d/Deaf and hard of hearing individuals is continuously negotiated and consumed only with approval from workers at low levels institutions (schools and universities), external employment agencies, and Federal and State law. In the transition to a post-industrial landscape workers are increasingly becoming reliant on knowledge and information work, as well as the affective delivery of their labor (Hardt, 1999). Friedner (2013) provides an example of this change, when in her ethnographic study she found that many deaf employees worked as cheerful and silent brewmasters in Southwestern parts of India. She

describes deaf workers exchanging their cheerful and grateful depositions, as Friedner puts it: “[with a] perfect cup of coffee to exemplify this imagined neoliberal subjectivity” (p. 47). Therefore, the suppression of silent workers’ subjectivity from the factory floor in Akron, Ohio, to the coffee shops in Bangalore, India served as testimonies to the workers’ discrete assimilations into the neoliberal workplace. The market will only confirm their contract of employment when they reveal themselves as both agreeable and docile workers (Morton, 2014). The perceived docility of d/Deaf individuals is not distinct to these workers, but applies to an increasing need for support workers like sign language interpreters to gain access to education and employment. The discrete presence assumed by support workers to minimize their work is one that draws on a midcentury example of office work. The ongoing conflict for support workers is somewhere suspended between providing affective labor for their d/Deaf and hard of hearing clients and presenting themselves as disinterested subjects. The present lack of interest in their work has been interpreted by access workers as a way to manifest agency for users, as encouraged by disability legislation. This chapter, as with the rest of this project, enquires into the possible meaning of authorship after decentering the discourse of individuality and self-determination that is inherent to the liberal language of disability legislation, and centering the affective labor of the access worker. Does the distribution of such translation practices – from sign language to captions – avoid the ideology of the mastery of texts, and gesture instead towards a feminist ethics of access? If so, how do we recognize and name such practices of access as something other than mere transcription?

This chapter has examined early representations of the human labor behind the production of captions, which were intended to ease fears around human-machine interactions. The visible entanglement between women's bodies and their roles as machine operators not only demanded these women's docility and neutrality, but also marked this type of labor as feminized, and skilled, but with lower wages than other skilled work (Murphy 2006; Hicks 2017; Misa 2011). The increasing precarity of caption work without the support of state mandates further reduces the value of stenographers' work to the provision of access as a form of unpaid labor. For example, when online communities like youtube.com began to distribute the work of closed captions for their videos, they first asked their users to *volunteer* their time (that is, perform uncompensated labor) to repair the errors of the automated text. Clearly vital to the increased accessibility and success of their platform, captioning was still not deemed sufficiently value additive to warrant financial investment. Reconciling the interwoven history of captioning work with that of feminist philosophers and historians, illustrates a narrative of collegiality held together by a complex system of human and machine interactions.

To make sense of these complexities, in the next chapter I will cover the process of maintaining the job dictionary belonging to specific stenographers in order to capture collegial intimacy in the classroom. On these terms, collegiality is produced through human-machine interaction, as well as a negotiation with the social nuances of speech to text translation.

CHAPTER THREE

The Stenographer's Dictionary: Labor, Coding, and Social Access

> Care is a human trouble, but does not make of care a human-only matter.
> (Puig de la Bellacasa, 2017)

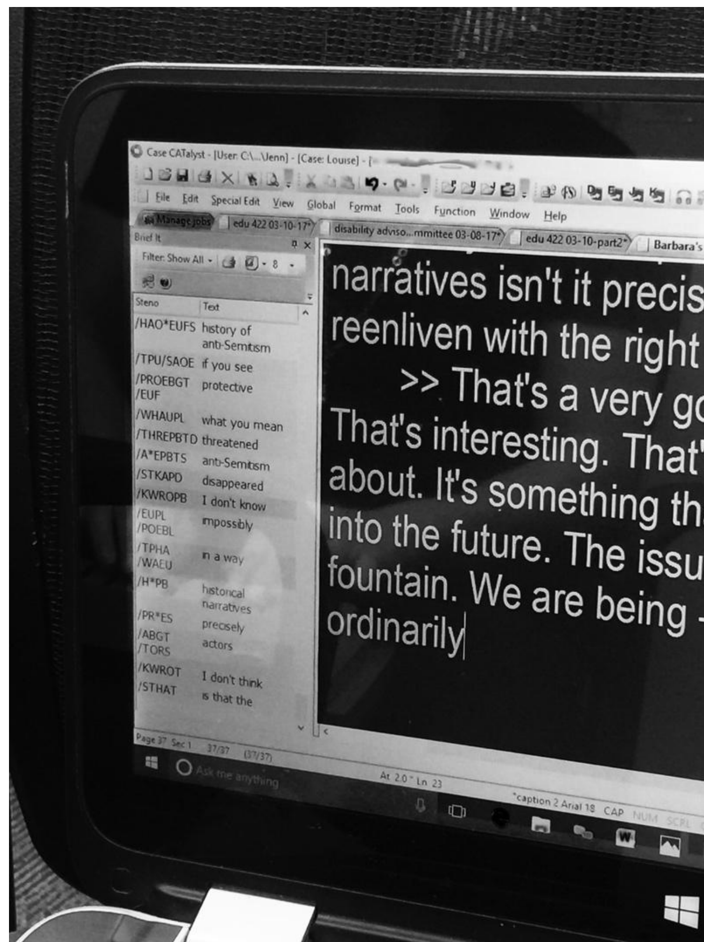


Figure 3.1 [Image Description]: A black and white image depicting a personal computer screen with real-time captions on the right. On the left of the split screen, the real-time captions are paired with steno codes, for example, the term "anti-Semitism" is encoded as A*EPBTS and "Historical Narrative" is coded H*PB. These digital shorthands are supported by the CAT (Computer Aided Translation) software. Photo by the author.

In their labor, the stenographer and the stenographic machine serve as two interrelated yet discrete social innovations. The stenographer uses a "job dictionary," a software program designed to convert stenoform (a method of digital shorthand) into legible text, which can only be accomplished once the stenographer has designed their own memorable cipher and stored it in the dictionary. The job dictionary is therefore a vital and highly idiosyncratic element in the production of access, and access is itself produced by largely invisible labor. This chapter proposes the standpoint of the stenographer as an access worker to consider how labor practices are bound together with the critical intersection of crip, queer and feminist epistemologies. This project utilizes those modes of analysis to contribute towards an understanding of the politics of descriptive labor, such as the transcription of spoken speech. The coordination of these transcriptive practices requires multiple human and non-human actors for their ultimate success. I have named this interdependent proximity "semiotic collegiality" as a way of exploring the dynamic co-ordination at work in the production of accessible texts in the academic classroom.[19] In this chapter, I use semiotic collegiality as a concept to attend to the technical production of real-time captions in relation to questions about kinship, the gendered nature of work, affective description, and the processes and procedures of disability accommodation. The emerging contours of collegiality, as enacted in the classroom, are made possible in the production of a form of stenographic shorthand, the transformation of spoken speech into readable texts; this encoding emerges in multiple

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[19] The term "semiotic collegiality" is in part inspired by Charis Thompson's (2005) coining of "ontological choreography." See also: Whalen, Jack & Whalen, Marilyn & Henderson, Kathryn (2002). 'Improvisational Choreography in Teleservice Work'. *The British journal of sociology*. 53, 239-58.

ways, but particularly through the stenographer's interaction with the discrete machination of their job dictionary.

For d/Deaf and hard of hearing students, the ways in which meaning is assigned to voice and sound changes significantly when they are first exposed to real-time captions as a means of accessing classroom discussion. As the stenographer transcribes speech through the process of typing in shorthand via her machine with twenty-four keys, pixelated words flicker across the laptop screen positioned in front of student in groups of three and four, producing an unsteady rhythm that the student must grow accustomed to.

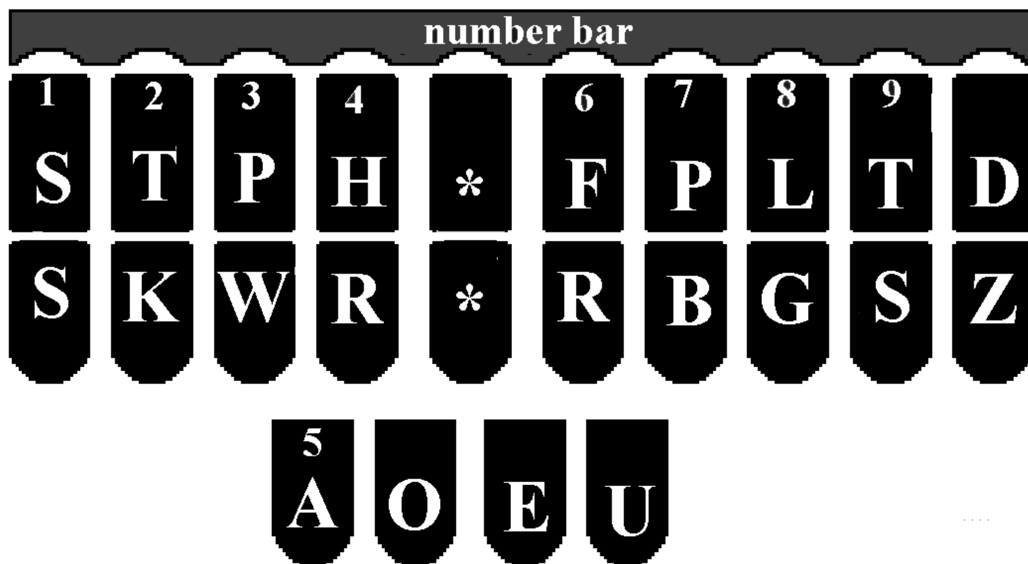

Figure 3.2 [Image Description]: The image above depicts a black and white outline of twenty-four keys from a stenograph machine. The keys are grouped in three rows with the bottom bar most notably denoting alphabet vowels (Kushalnagar et al., 2012; 2014).

The input of real-time text to a stenograph machine is enacted through a process known as chording, which, through a complex and highly technical learned-shorthand, spells out the complete wording and phrases as spoken in the academic classroom. The stenographer's prime objective is to accommodate and render the esoteric vocabulary used in an academic seminar, for instance, to provide transcription services for d/Deaf and hard of hearing students.

The material emergence of real-time captions is entangled with the immateriality of spoken speech, and produced simultaneously through engagement across multiple voices and temporal registers; as students speak in an overlapping manner there is often no clear indication of who is speaking at any one time (Hickman et al., 2015). In these spaces, the spoken word undergoes a process of speech-to-text translation, and is distributed across multiple subjects (students and educators) and technologies, complicating and expanding conceptions of the embodiment of voice through speech pattern, rhythms, stress levels and intonation (Pullen, 2015). In most instances, the affective presence signified through the subtleties of voice is partially lost in the process of speech-to-text translations. For d/Deaf and hard of hearing students, the partial absence of voice signifiers limits the extent of their participation during classroom discussion. Voice is vital to numerous classroom practices according to cultural critic Mladen Dolar (2006), as he writes: "we are social beings by the voice and through the voice; it seems that the voice stands at the axis of our social bonds, and that voices are the very texture of the social, as well as the intimate kernel of subjectivity" (p. 14).

Through social engagements with real-time captions, spoken speech and subjectivity resonate with deaf consumers and become interwoven with the

discretionary choices of the stenographer. In other words, the cultural meaning of sound and spoken speech are assigned to real-time texts. The assignment of meaning is further complicated by the narrowly defined, state-mandated process of captioning in the historical evolution of a speech-to-text industry at large. The overlapping emergence of this industry occurs through three primary speech-to-text systems: educational captioning, court reporting, and open/closed captioning in film and television[20] (Downey, 2009). In order to underline the impact and limitations of speech-to-text technology as it is employed in the production of shared academic knowledge, this chapter explores the shifting proximity of collegiality as it develops between the stenographer and their labor with (and for) a deaf consumer. In studying these collegial practices, I turn briefly to Annemarie Mol's *The Body Multiple: Ontology in medical practice* (2002), which adopts an empirical approach to studying the foreclosure of the distinction between subject (namely patients and hospital workers) and object (disease and illness) to comment on the construction of disease as enacted through medical practice. With these practices in mind, how do we consider assemblages of access as ontological, performative, and co-produced in their lives as social texts? In understanding these social texts as enacted through the socio-material encounter between stenographer and their machine, I attend to multiple modes of *becoming* by exploring real-time captioning as an event.[21] The challenge of this study of the job dictionary is how to situate the process of real-time

[20] The emergence of these three systems is systematically documented by the extensive research of Gregory J. Downey's *Closed Captioning: subtitling, Stenography, and the Digital Convergence of text with Television* (2009).

[21] The study of these multiple events has been taken up by Annemarie Mol's work, which unsettles the epistemological construction of atherosclerosis. Fundamental to this project is the ongoing question of methods, as explored here through attention to assemblage. As the science studies scholar John Law (2004) remarks, Mol's project has "no object, no body, no disease," that "is singular."

captioning, or more broadly the objects related to models of access, as enacted and described in transcriptive practice.[22]

Enacting Real-Time Captions

In the epigraph to this chapter, feminist science and technology scholar Puig de la Bellacasa (2017) describes "care" as a "human trouble." This iteration of care as a human-only trouble confirms the complexity of understanding human entanglements with technology as sociotechnical processes or forms that refocus the way care can be mediated by feminist ethics. Speculating on care as not a human-only matter, as articulated by de la Bellacasa, redirects the verb of care towards the sort of knowledge production assumed in science and technology studies (STS). To "think with care" in this capacity within the domain of the social sciences (and post-humanities) produces an entanglement with the genealogy of care initiated in the early 1980s with the philosophical debate surrounding the ethics of care more generally (Martin, Myers, & Viseu, 2015) [23] In the process that I am calling semiotic collegiality, the notion of care is

[22] The multiplicity of transcriptive accounts that emerge in the enactment of care have been significant for sociologists and anthropologists to consider how we reproduce "good care," or inform individual choices when choosing modes of care. (Mol 2002; 2008; Mol, Moser and Pols 2010)

[23] A recent conference on thinking with care in technoscience at York University in Toronto, Canada, undertook an understanding of what care "looks and feels like", driven by "context-specific and perspective-dependent" modes of thought. (Martin, Myers, Viseu, 2015) The iteration of care as a human trouble draws on Donna Haraway's *Staying with the trouble: Making Kin in the Chthulucene* (2016) As Haraway writes: "Staying with the trouble does not require such a relationship to times called the future. In fact, staying with the trouble requires learning to be truly present, not as a vanishing pivot between awful or edenic pasts and apocalyptic or salvific futures, but as mortal critters entwined in myriad unfinished configurations of places, times, matters, meanings." (page, 2016) The appellation of thinking with care allowed conference organizers to foreground critical questions around the practice of care, namely what exactly is care, and who has the power to care?

not held together by a single definition, rather the concept of care is transitional, and continuously deliberated through multiple encounters inasmuch as we care for others (interdependency), and we are recipients of care (dependency) (Wendell 1996; Kittay 2011; Fine and Glendinning 2005). Attention to the development of real-time transcription in the postwar period sheds light on the complex dynamics of (reproductive) labor and care. In court reporting, for example, stenographers were trained to transcribe legal proceedings as disinterested subjects. Much like office work, the legacy of scientific management (Taylor, 1967; Murphy, 2006) foresaw the standardization of stenographer's work in both the office and the courtroom, yet, this was not the case for stenographers who took on freelance captioning work in academic classrooms. To provide access in the classroom, stenographers find themselves entangled with linguistic demands that exceed the standardized settings of both the courtroom and the corporate office.

In the following pages, which account for the systematic shift of stenographic labor practices, this discussion will also consider the typist's conflicting relation to the labor of care. In the classroom, the stenographer's work must reconcile their interpretive labor with the vastly different demands of everything from organic chemistry to studio art, providing access for their d/Deaf and hard of hearing consumers in ways that effectively communicate the overlap between interpersonal and academic conversation. As the increasing demands of interpretive labor collide with the shift towards information and knowledge economies, this research project reveals that stenographers are forced to keep up with these demands by adopting the midcentury practice of shorthand, such as using handwritten notes and annotations to support the production of digital texts

(see Figure 3.3). In the midst of these changes, the labor produced by the stenographers across the three speech-to-text industries has become increasingly disciplined, gendered, and even mechanized.

Despite the predominantly gendered connotation of scientific management as male (Murphy 2006), the flourishing of courtroom work, led largely by women, made transcription practices a site of the realization of women's labor power. In film and media work, as well as CART (Communication Access Real-time Translation) captioning in education, the curation of access for d/Deaf and hard of hearing consumers depends largely on the transcriber assigning *subjective* meaning to both spoken speech and sounds (Zdenek, 2015). This stands in contrast to the automated, literal transcription of the courtroom, in which the stenographer's interpretation is not required. One might ask: are modes of transcription that enable access to interpersonal spaces therefore necessarily indicative of a way of caring by the mere fact of their affective labor? Do real-time transcribers consider themselves personnel of care? Attending to the equivocal question of care as not human-only matter, this discussion deliberates on the dynamic co-ordination of real-time captions mediated through distributed forms of collegiality, which are supported by a collection of artifacts, including the stenography machine, the job dictionary (computer software), and the handwritten annotations.

Examining these distributed forms of collegiality draws upon feminist epistemologies as well as the growing literature on crip ways of knowing (akin to queer knowledge production), especially as they take place in academic classrooms. In doing so, this discussion also challenges how the forms of knowledge produced in these

spaces are deeply entangled with sociotechnical labor practices. How knowledge-making practices are distributed among transcriptive networks of real-time texts is brought into focus through the enactment of accessible description which is cultivated on both sides of production, that is, for the stenographer and disabled and d/Deaf students.[24]

The sociotechnical production of real-time captioning is part of a collaborative process that requires an exchange of labor to complete access to spoken speech (Titchkosky 2011; Hamraie 2012; Hamraie, 2017). The collaborative nature of the production of access poses new questions: how can we *crip* our understanding of the labor of care? Moreover, how do other forms of labor question the way that convivial modes of communication largely stand outside the contract of exchange? The semiotic notation of these exchanges has shifted to denote both intimacy and the causal encounter, returning to the question of how convivial forms of labor largely stand outside the contract of exchange.

[24] For significant work on multimodality and the process of distributed production of meaning in practice see: Edwin Hutchins, *Cognition in the Wild* (1996) and “How a Cockpit Remembers its Speeds” (1985). For a person-centered model of distribution see: Hélène, Mialet (2012), *Hawking incorporated: Stephen Hawking and the anthropology of the knowing subject*.

The Stenographer(s)

Figure 3.3 [Image Description]: The image above depicts a woman seated behind a desk with several computers of various sizes, including a display monitor with real-time captions overlaying a white male figure speaking at a conference at Gallaudet University. An additional screen depicts several columns of text coupled with a QWERTY keyboard, which is placed in front of the assumed typist (Gallaudet University Archives).

The stenographer(s) featured in this project remain nameless, and, necessarily, the collective figuration of this group and their labor will move along a continuum of plural and singular worker identities. The ambiguous boundaries of these relationships are purposely portrayed to foreground the historical proximity between the anonymous stenographer and their hidden labor in order to actively emphasize the agency of d/Deaf consumers as members of a marginal group.[25] In other words, the discreteness of caption work for deaf consumers has historically foregrounded the need for quiet and

[25] It is worth noting here, that Deaf students are more likely to mediate access in the classroom via an ASL interpreter rather than use the CART service.

discreet collegial encounters. The legibility of real-time captioning for deaf consumers is deeply entangled with the shifting proximity shared between the stenographer and their readers.[26]

The kernel essential to understanding this process as "semiotic collegiality" first became apparent to me when a CART provider in a performance theory class promptly left each seminar to complete their second shift of the day, producing real-time captions for twenty-four hours news at home.[27] In campus classrooms, the stenographer produces real-time captions for their deaf reader(s) that correspond with the speech spoken by multiple people in the room. Thus, their collegial presence can engage and make sense of the nuanced form of communication held between peers that is transformed (through their labor) into legible texts. While real-time captioning for television is not the main scope of this discussion, it is worth noting that a stenographer's practice generally stems across the three models of text-to-speech systems (namely education, court reporting, and film and media), invoking numerous possible forms of collegiality between the stenographer and their readers. The emergence of the speech-to-text system itself is comprehensively documented by Gregory Downey's (2008) *Closed Captioning*, which foregrounds the geopolitical formation of captioning within the United States. Downey notes that the variety of work available to stenographers has allowed them to choose and adjust the type of labor they utilize – ranging from providing near-verbatim accounts in educational settings with

[26] This chapter switches between the terms "deaf consumers" and "student readers", in part to denote the changing locale of the stenographer's users and their reading practices.

[27] In the late 1990s, the NCRA consciously rebranded CART to stand for "communication access real-time translation" rather than the earlier "computer-aided real-time translation" because, the association claimed, "the CART provider possesses additional expertise in conveying the intent and spirit of the speaker's message" (p. 166).

lower stress levels, to the pressure of live captioning in electronic newsrooms. Even though more work is needed to study the working conditions that produce real-time captions, the stenographer's work alternating from on-site work to remote captioning completed from home draws attention to the collapse of space-time and the flexible work conditions associated with precarity and Post-Fordism. For example, the figure of the stenographer is considered in Antonio Gramsci's essay "Americanism and Fordism" (1948) to discuss the automation inherent to the reproduction of printed texts preceding the era of mass communication. Gramsci's concept of Fordism expands upon Marx's theory of capitalism to account for innovations in science and technology, which in turn propels Gramsci's analysis of automated labor. For Gramsci (1971), the loss of self-government for workers (in this case, reproducer of texts) through the devaluing of their skills means "forgetting" or "not thinking" of their labor (p. 295). The repeated iteration of the stenographer's gestures refers to a distinct phase of post-Fordism that signals the entry of the machine, and echoes the scientific principles of Taylorism that rationalized systematic production (Taylor, 1967). [28]

Gramsci's revolutionary ambition for full automation praised the "human-machine"; he marveled at the possibility of the stenographer's production of "each letter" and "word" as non-signifying texts (Pittman 2014, quoting Gramsci 1971). The removal of intellectual content is confirmed by Antonio Gramsci (1971), as he writes, "The only thing that is completely mechanicised [sic] is the physical gesture; the memory of trade, reduced to simple gestures repeated at an intense rhythm, 'nestled' in the muscular and

[28] While the introduction facilitated women's entry into paid labor – the process at the core of this automated project has often confused the feminization of labor with work becoming more simplistic. (Hicks, 2017) For further work on women's labor in office spaces see Michelle Murphy's *Sick Building Syndrome and the Problem of Uncertainty: Environmental Politics, Technoscience, and Women Workers* (2006), and Jennifer S. Light's *When Computers were Women* (1999).

nervous centers [leaving] the brain free and unencumbered for other occupations" (p. 295). The automation of these "physical gestures" is only disturbed when a stenographer's attention is called to their typos and phonetic mishaps, common in their rendering of legible texts for their readers. As real-time caption providers find themselves working within the precarious work conditions associated with information and knowledge industries, Gramsci and other Marxist theorists have emphasized the ways that capitalism has adapted to produce new kinds of laboring body (Harvey, 2000). The stenographer as a new laboring body are realized in Alex Pittman's 'Dis-Assembly Lines: gestures, situations, and surveillances' when performative acts of gesture are found to inform the "pacing and timing" of managed labor (2014). The collapse of space/time along this continuum is particularly felt by the stenographers when the rendering of real-time captions in the classroom are read simultaneously with their readers, thus emphasizing the affective pressure to produce near-verbatim accounts for d/Deaf and Hard of Hearing consumers (Hickman et al., 2015).

Gramsci's description of automated labor, however useful, does not account for the shifting scales of sociotechnical processes at the heart of transcriptive work. As I argue, such work is maintained through collegial intimacy and understanding between a stenographer and their client that prescribes a form of labor that draws on relational and affective capacities to negotiate the terms of access in the classroom (Titchkosky, 2011; Kafer, 2013). The proposed category of access work (as distinct from personal care) draws on the complex and precarious nature of transcription work.

Stenographer's Labor

In the vast majority of American university classrooms today, the stenographer's relationship with their machine departs to some degree from the practice of midcentury office work. In the first instance, the adaptability, flexibility and increased mobility (notable symptoms of post-Fordism) of CART providers positions them as workers who perpetually move between their own domestic spaces and on-site jobs according to their client's needs (Weeks 2011). In this section, I consider the production of real-time captions to state the shifting relations shared by the stenographers and their d/Deaf and Hard of Hearing consumers are continuously shaped by the ongoing work of maintaining their own, unique job dictionary. In other words, how stenographers proximate their captions for their readers is informed by repetitive loops of the input of "stenoform" (a method of digital shorthand) into readable texts. In this sense, the complex emergence of digital shorthand is described as "not a completely defined language", rather each operator must group these words and word parts according to their own style (Downey, 2009, quoting Galli, 1962). In the classroom, rendering this digital shorthand requires the stenographer to identify and codify conversational turn-taking in real-time classroom discussion.

The coding of spoken speech and collegial nuances among these interactions are embodied, literally and metaphorically, by the stenographer access to their machine and software. For example, the way that stenographers produce textual translations of spoken discourse and non-speech sounds is largely subjective, and these decisions have major pedagogical implications. For example, how do real-time caption providers translate other speakers' hesitation during seminar dialogue? One example of these

textual cues is the transcription of emphasis as expressed with the continuous repeating of long dashes [– –], which connote long breaks in class dialogue. In other contexts, these long dashes can be used to denote a new speaker, an incomplete thought, or even a speaker's interruption by ____. Capturing these seemingly insignificant events reveals a collegial intimacy pertaining to the context of conversational turn-taking in the classroom, which in turn manifests the necessity for the production of understanding of access that go beyond mere translation. The affective labor evidenced in classroom translations, therefore, acknowledges the stenographer's intimate relationship to the animated production of their texts, rather than one of simple programming through automation.

Although the formation of the job dictionary appears as unremarkable for multiple speakers, the process of real-time captioning continues to be formulated over a period of months, or even years. For those seated around the seminar table, these unremarkable events of transcription are purposely designed to foreground discreteness delivered by the stenographer to protect the privacy of their d/Deaf and HOH consumers. To further protect a student's privacy, stenographers are often found working at the margins of the classroom space. The discrete collapse of time/space found distributed between the stenographer's transcriptive technology and the speakers themselves obscures the labor behind the increasing standardization of accessible services. The parallel between the discreteness of these events around the seminar table, and the image of the lone typist above in Figure 3.3 reveals the production of real-time access occurring "backstage" (Goffman, 1959).[29] In following this backstage

[29] The dramaturgical approach of "backstage" is used in Erving Goffman's "Presentation of Self in Everyday Life" to situate sociological interactions (Annemarie Mol (2002), Morana Alač (2016), and Lucy

analogy, Erving Goffman's *Presentation of Self in Everyday Life* (1959) draws on language of theater production to discuss human subjects. Onstage, Goffman described individuals' actors performing and presenting a social persona, and in these public performances, actors model their persona to be socially effective. These performative sites of exchange, both onstage and offstage are understood as worthwhile objects of sociological study. The stenographer in the aforementioned image is depicted as transcribing real-time speech through a television monitor, while effectively hidden from view, thus reaffirming the concept of access as something private and outside the norms of interaction. Therefore, the discrete subject position assumed by the CART typists in this example valorized by the influence of the disability rights movement inasmuch as such discourse privileges agency over the visibility of support services. Hiding this form of labor from view effectively occludes the time and skill needed to construct the extensive vocabulary inherent to spoken speech (both formal and informal) in academic spaces. Even more, it redoubles the invisibility of uncompensated reproductive labor. The ongoing maintenance of the job dictionary, for instance, often happens during non-contracted hours, and is vital to engaging effectively with esoteric language in the classroom. Thus, maintaining the dictionary as uncompensated labor for female stenographers is akin to housework, feminized work that "reproduces" the structurally "masculine" position of the disabled subject – the only productive laborer.

The discrete nature of the job dictionary was made uniquely visible when the stenographer disclosed the systematic failure of her personal computer by stating the

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Suchman (2011) have drawn on Goffman's metaphor of dramaturgy to frame the ways in which sociomaterial artifacts are distributed through various forms of agency.

loss of the job dictionary. This was revealed to me as a CART user when the long-term stenographer of mine told me, “I lost your dictionary.” In personalizing this failure, the stenographer centralized the apparent loss of individualized data from hours of class time, which resulted in an expanding temporal lag between (uncoded) spoken speech and real-time text appearing on screen. The loss of the job dictionary here reflects the immateriality of spoken speech in classroom settings, but spoken speech compared to information, as the post-humanities scholar Katherine Hayles (1999) suggests, is always instantiated by a medium (p. 192). The material emergence of texts, for example the recording of lectures, might be instantiated but not always accessible to their d/Deaf and hard of hearing consumers. The vignette describing the loss of the dictionary foregrounds the impactful absence of the codification of knowledge gained through the aggregating of texts associated with multiple class syllabi. The loss of the coded steno-form is felt in ways that cast into sharp relief the co-production that takes place between the stenographer and the D/deaf and hard of hearing consumers. The stenographer's first encounter with the name “Marx” during one class, for example, was simply transcribed as [Marks]. In a similar encounter, the sociologist “Max Weber” emerged as [Vader.][30] The occurrence of these phonetic mishaps reveals that [Marx] could not be constituted from other word-part steno codes in the job dictionary, and the absence of coded texts in the job dictionary means the stenographer has to “render phonetically or ‘finger spell,’ laboriously making one steno stroke for each letter.” (Gluzman, 2015) The slippage between [Marx] and [Marks] is interchangeable, and it therefore must be “finger spelled” [M – A – R – X] until this theoretical figurehead is ultimately encoded into the job dictionary. The fingerspelling of Marx above is paired with long dashes to denote a

[30] Squared brackets are used here to denote the direct quotation of real-time captions.

temporal departure from the speech produced in the classroom in real-time. Therefore, the construction of the stenographer's job dictionary means researching and uncovering unfamiliar terms, names and technical languages before the class meetings.[31] The 'job dictionaries' are *trained* to remember the lexicon of any given speech community, as shown in the Marx classroom.

[31] This is further discussed in Gregory Downey's *Constructing a "Computer-Compatible" Stenographer: The Transition to Real-Time Transcription in Courtroom Reporting* (2006) and *Closed Captioning* (2008); see also Marty Block and Jeff Hutchins "The politics of captioning" NSR (May 1989) 20-21.

Handwritten Annotations to Digital Stenoforms

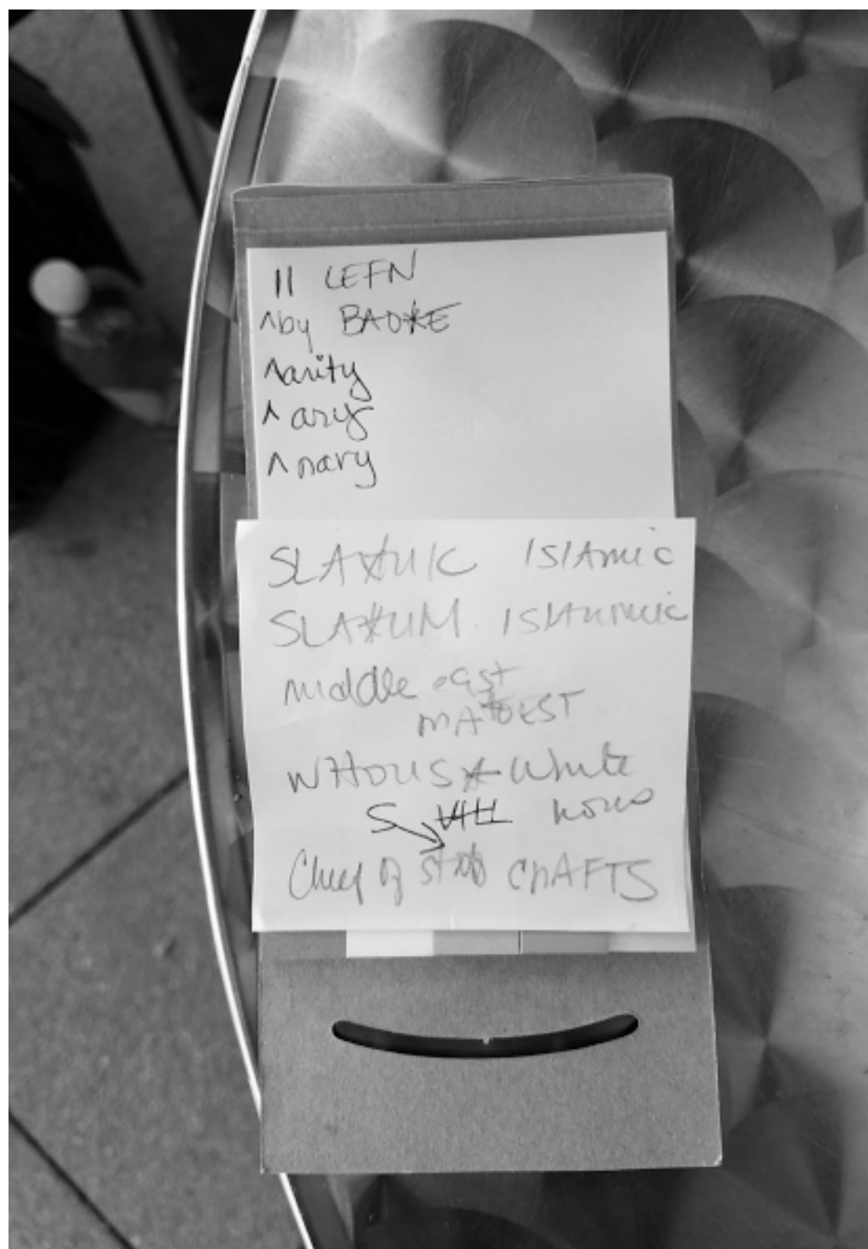

Figure 3.4 [Image Description]: A black and white image with two overlapping post-it notes depicting pencil handwritten annotations paired with spoken speech. There are additional markups by pen, which appear to modify pervious steno coding. Photo by the author.

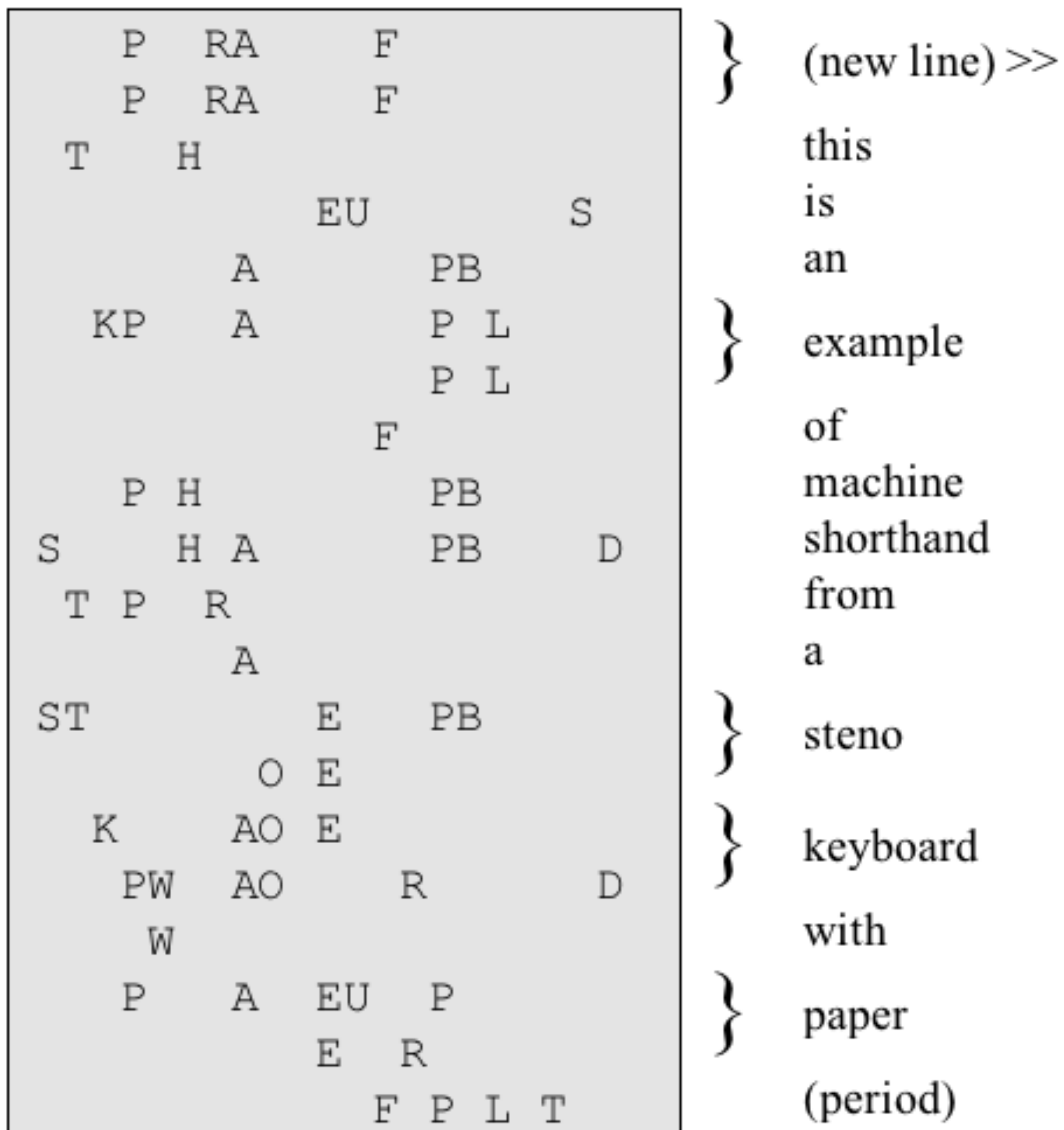

Figure 3.5 (visual description): This diagram represents a simplified version of digital shorthand as it appears on the stenographer's personal screen.

The loss of data requires the stenographer to rebuild his or her dictionary. But it also completes the ongoing work of repairing broken steno codes through hand-written annotations, while instantaneously producing real-time captions. In the image above (Figure 3.5), the depiction of the overlapping Post-It notes are marked with hand-written annotations to reveal a series of steno codes to be programmed with the stenographer's

dictionary. The practice of handwritten annotations was partly developed in conjunction with court reporting and media captioning, in which a second person (text editor, or scopists for instance) would support the stenographer with prepared texts before beginning their transcription. These prepared texts were known as "daily dope" sheets as used in the media industry and the "dog" sheets used in courts (Downey 2008). The dope sheets were designed to document specific entries, particularly for live programming, of names and places according to the running order. Importantly, the preparation of captions was completed by two people – one with the stenographic machine itself and the other as a dope sheet text editor. These sheets functioned in part like the post-it notes, an annotated artifact within an "economy of anticipation," thus accounting for the space-time and labor preparation needed before the event of captioning begins (Block & Hutchins, 1989). [32]

The Post-It notes are integral and discrete objects belonging to a grouping that is held together by human labor in order to curate real-time access. The mobility of these artifacts has important functions for the stenographer's work; first, the handwritten shorthand functions to couple spoken speech with new stenoforms. Transferring these examples of handwritten shorthand to digital shorthand enables the stenographer to complete the cognitive work required to co-ordinate linguistic distribution between speech and the dictionary software.[33] The singularity of the stenoform reflects a

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[32] The development of computer aided technology (CAT) software (as shown in figure 1.1) has since largely replaced the need for text editors and scopists. This software allowed the transfer of digital shorthand into readable text in "real-time," eliminating the need for additional personnel to maintain their transcript. Thus, the introduction of the CAT software also required writers to standardize their stenoforms.

[33] For significant work on multimodality and the process of the distributed production of meaning in practice see: Edwin Hutchins, *Cognition in the Wild* (1996) and "How a Cockpit Remembers its Speeds,"

combination of keys used to represent words, or word parts, into readable texts, which are computed both "physically (chording) and mentally (coding)" (Downey 2008). In other words, the production of stenoforms is unique to each stenographer, and in most cases, each word or word parts assume variation once assigned to their dictionary. The lack of standardization of these stenoforms makes them highly idiosyncratic, and no stenographer can therefore labor the work of another.

In the classroom, the complexity of real-time captioning is coupled with the maintenance of a large job dictionary required to caption classes across multidisciplinary locations on campus. A standard dictionary in a courtroom typically contains 30,000 words, whereas the captioning for the classroom can contain three times this amount. (Hood, Wood, & Jones, 1997) The annotated post-it notes function as a tool of knowledge-making, which enables both the stenographers and deaf consumers to relate to the discourse of their classroom. The decoding of specific words found associated with particular students, and paired with the post-it notes then becomes the condition of possibility for the job dictionary, each drawing on the affective attention provided by the stenographer In Figure 3.5, for example, the two post-it notes were produced as part of a stenographer's first encounter with broadcasting captions, the two handwritten notes refer to "Islamic" as both "SLA*UIC" and "SLA*UM." As the stenographer moves into broadcasting work, new dictionaries are prepared in response to the discursive needs of television news reporting. On these post-it notes additional markups are inscribed by pen to suggest an ongoing editing process to consider appropriate adjectives for rebuilding the new dictionary. Working between handwritten

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(1985). For a person-center model of distribution see: Hélène, Mialet (2012), *Hawking incorporated: Stephen Hawking and the anthropology of the knowing subject*.

and digital shorthand is also part of the intensive process that stenographers must go through of extending their existing dictionaries, and most often, the dictionary preparation work completed ahead of time stands outside of the stenographer's contracted hours.

Post-it notes thus demonstrate how labor and meaning-making are bound by acts of transcription: the stenographer assigns meaning to spoken speech by continuously attending to site-specific, personalized language. For stenographers, the interaction with speech-to-text systems remains vulnerable to catastrophic disruptions, as demonstrated by the loss of data suffered in the previous example. Interestingly, the distribution of a stenographer’s labor and work is often determined by an external booking agency, and the resultant precarity of their labor is found to be entangled with the steno machine itself. The formation of the speech-to-text system has largely informed the stenographer’s relation to their machine in ways that require ongoing labor, in order to prepare, construct, and repair the production of stenography codes. What becomes clear is that, quite often in these settings, the maintenance of collegiality among the consumer’s peers is rendered by the dictionary and the ways in which meaning is assigned to spoken speech develops through an economy of collegial care. How spoken speech is rendered as a readable text on the consumer’s screen is bound by a complex system of care found to be distributed between the stenographer, their affective labor, and particular technical objects (i.e. the machine, job dictionary) to construct the material emergence of a transcriptive system.

In placing collegial intimacy at the center of a discussion on real-time captioning, I rely on Michael Hardt’s (1999) articulation of affective labor, which comes to define the

labor of the stenographer in the continual exchange of information and knowledge. Caring labor, as Hardt writes, is “immersed in the corporal, the somatic, but the affects it produces are nonetheless immaterial. What affective labor produces are social networks, form of community, biopower” (p. 96). The cybernetic immersion of the networks held together by the typist’s intimate tactility and familiarity with the stenographic keyboard complicates how real-time access is imagined (Alač, 2016). Rather than describing the feedback loops between spoken speech and the socio-material assemblage of stenographer and machine as a cybernetic prosthesis, which is insufficient to explain how social actors mediate academic spaces. I evoke on these exchanges of labor to foreground the politics of translation.

The stenographer’s subjectivity is evidenced in Yelena Gluzman’s ethnographic film *Invisible Machine* (2015), which found that the stenographers central to her study did not produce near-verbatim accounts in the classroom. Rather, this study found that when a stenographer produces captions, the typist often “*tidies up”* the spoken speech to improve readability for their deaf consumers. The adjectives of ‘tidy” and “improve” are terms both resonant with the subtleties of affective labor required from the stenographer. In short, they are not simply producing near-verbatim accounts of spoken speech, but they are making choices about how to transcribe access. From the mechanical production of stenoforms to the intimate relation that stenographers have with their machines, these actions indicate forms of access-making that are maintained through social relations. This is echoed by cultural anthropologist Anna Tsing (2015) who suggests that objects (things) of exchange gain value through the “social relationship and reputations of which they are part” (p. 122). The stenographer must

labor to work consistently with the social relationships that are seated around the seminar table. Indeed, the human-machine intimacy finds value in labor when coding these social relations. Deaf users therefore not only develop a social relation with stenographers, but also can locate the value of their own sociality through access to their dictionary.[34]

The flexibility and precarity of the labor conditions that produce transcription are collectively embodied by the steno operator, machine, and the job dictionary as what Susan Leigh Star (1989) might term “boundary objects.” These objects are defined by their plastic ability to “adapt to local needs” as Star and James Griesemer (1989) assert: “the constraints of the several parties employing them, yet are robust enough to maintain a common identity across sites.” Thus, these boundary objects are organized around three key concepts: mutual engagement, shared repertoire and joint enterprise (Wenger, 1998). For Gregory Downey (2008), how boundary objects (in this instance the machination of the dictionary) circulate among a stenographer’s communities of practice reveals the contradiction between “labor time” and the results of a “labor product” (p. 292). For CART providers working in a solitary on-site environment or alone remotely these communities of practice are not always visible to other workers. Once training is completed, and in contrast to the midcentury office pen, supportive spaces have largely evolved through the adoption of online forums. The network of stenographic labor has emerged through three major speech-to-text systems: court

[34] The relations of these post-it notes are reflected from multiple standpoints which assume the position of the disabled researcher and student reader. The post-it notes have no exchange value without the stenographer’s embodied labor through the practice of stenoforms, and neither are these notes available for usage in other settings by the readers. The capitalist logic that determines the ongoing labor as required to prepare, construct, and repair the production of stenography codes are both recognized and find value in this service.

reporting, media and film, and education, each of which have progressed in ways that enable other systems to advance their own training program, stenographic technology and the value of their service. In this instance, the lobbying of court workers not only recognize the value of their own work, but also facilitated meaningful employment for CART providers.

On the other hand, such lobbying for value-recognition by court workers has also meant the increase in costs for CART users; as the exchange value of the specific skill and labor increases, so too do the costs to service users. Value has been maintained in the courtroom to protect the technical role of a court reporter’s work, which not only recognizes the technical and skilled labor practices involved, but also provides, as Downey (2008) writes: the “tangible embodiment of ephemeral physical and mental labors over the stenotype keyboard.” The advances in courtroom stenography as supported by state mandates and profit has allowed other forms of speech-to-text industry to emerge alongside technological advancement and profitability in education. Even though the visibility of the stenographer’s work has achieved a degree of legitimacy in light of these developments, as Downey summarizes, “visibility can create reification of work, opportunities for surveillance, or come to increase group communication and process burdens." The ongoing production of stenoform is an industry largely protected by legal court reporters and associated lobbying groups, including the National Court Reporting Association. While the impact of these lobby groups are not immediately apparent in the classroom, the largely unwaged ongoing upkeep of the job dictionary is central for the stenographer to produce the labor necessary for their freelance jobs. The profitability of speech-to-text systems has been

historically enabled by the need for a translation of the steno-code for general readability. Thus, the value of steno-labor is only realized when the work is ultimately decoded for their readers. Therefore, the means of production of transcribed texts is entangled in multiple processes that have been systematically “valued, devalued, valued, and revalued” (Downey, 2008, p. 180).

The relationship between the stenography machine as an historical technology and disability as an event of experience is complicated in this chapter by mapping multiple entanglements with access. In the emerging field of caption studies, the mass communication scholar Downy and humanist scholar Sean Zdenek (2014) have both considered the potential production of a caption archive as a way of thinking through this relation. In the first instance, Downey’s extensive recovery of the stenographer’s ephemeral labor finds such practices distributed across the speech-to-text system, and as recognized only once technology moves solely to digital platforms. Here, the switch from analog (or signal transmission) to digital brackets the study of captions that are produced, encoded, and embedded within analog networks. If the recovery of analog closed captioning is possible, what type of care and labor might be needed to complete this work? Zdenek imagines an archive based on the principles of universal design to produce research through multimodal approaches. Zdenek’s work largely attends to the production of closed captioning in film and television to consider the instantaneous rhetorical appropriation of diegetic and non-diegetic sounds. While the study of non-speech sounds might not be necessary for the academic classroom, my own research indicates that we need a broader understanding of how transcribers assign textual meaning to sound.

In considering captions as social texts more broadly, we can ask new questions: what is rendered in a transcriber's assumptions about "what is lacking" or as Zdenek (2014) suggests, "the surplus of speech sounds that the captions fail to capture" (p. 204). The issue of an ethical archive here resurfaces to ask how we might construct an archive of captions through appropriation of the invisible work provided by stenographers. How might we uncover hidden forms of labor through attention to historical transcriptions, and in building these archives, how might hand-written annotations be considered a vital yet ephemeral part of the production of accessible knowledge? The assembled archive also reflects the ongoing difficulty faced by scholars in Critical Disability Studies, for which I echo the wording of Julie Avril Minich (2016): what do we want our work to do?

The curation of the stenographer's dictionary, for example, is one that intermittently circles back to two pressing theses that have developed throughout this chapter, that is, the maintenance of ongoing forms of collegial intimacy, and the labor that discretely enacts these forms of access. Although these terms have conflicting presentations, I argue that the ability to forget one's labor is not vital to the reproduction of accessible texts. Even as Gramsci's account of Americanism and Taylorism de facto includes the profession of stenographers, the rebuilding of the job dictionary, as shown in this chapter, suggests that transcription requires both corporal proximity and a reflexive understanding of access and collegiality. This balancing act somewhat disturbs Marxist claims to the exploitative effects of the assembly line, but otherwise completes the estrangement of this type of labor, as felt both by the producer and the consumer of accessible transcriptions. In short, the words built into the job dictionary neither belong

to the stenographer, or in this case to the service user. To imagine real-time captions alongside other forms of accessible transcription as mere provisions of disability service fails to address the process that goes into these texts. Considering transcription as a text and an embodied form of practice presents challenges to the exclusion of these texts from the canon of disability culture.

Chapter Three, in part, is material published as a journal article, Hickman, L. (*under review*). Accessing Crip Collegiality: The politics of the standardization of real-time captioning. *Catalyst: Feminism, Theory, and Technoscience Journal*. The dissertation author was the primary investigator and sole author of this dissertation manuscript.

CHAPTER FOUR

Toward A Feminist Ethics of Access?

> To have a voice is to be human. To have something to say is to be a person. But speaking depends on listening and being heard; it is an intensely relational act.
>
> Carol Gilligan (1982, p. xvi)

As earlier chapters of this dissertation have shown, transcriptive labor should be defined as a type of *access work* rather than as *dependency work*, which follows on from Eva Feder Kittay's conception of the gendering of labor among care workers (Kittay 1999; Kittay & Feder, 2002; Kittay, 2011). As discussed in Chapter Three, the collegial upkeep of the job dictionary reveals that, rather than a singular and legal definition, the curation of access involves a multiplicity of actors who make access work possible. Typically, "access work" is identified as a process of standardization and uniformity among information workers in a postindustrial economy. In the following discussion, however, I will examine such assessments as counterproductive and, instead, examine access work as collegial, intimate, and co-constitutive. To do this, I interrogate different approaches to the feminist ethics of care (including those of Kittay & Feder, 2002) in order to delineate what I will call a feminist ethics of *access*.

This chapter tracks the emergence of the category of the access worker as a departure from previous critical understandings of so-called "dependency workers." The term "access worker" is a concept originating with the introduction of the British welfare-

to-work scheme, used to describe the provision of personal assistants for disabled people in paid employment. The term and its meaning can be traced to the first economic recession of the 1980s, during which global policy shaped by the Thatcher-Reagan and Blair-Clinton administrations expanded a neoliberal agenda that has arguably resulted in the current state of neoliberal conservatism (Duggan, 2003). The welfare-to-work scheme, propelled by the Disability Discrimination Act of 1995, found that the provision of support was treated as a 'reasonable adjustment' (much like the Americans with Disabilities Act's articulation of "reasonable accommodation") as supported by the Access to Work scheme.[35] Thus, the access worker is therefore *explicitly* an accessory to productivity rather than being ideologically folded into the domestic sphere.

The ontology of the access worker is important for the ways that it challenges accepted understandings of dependency, particularly those upheld by a feminist ethics of care. In the early 1980s, feminist philosophers set out to consider the moral significance of resolving conflict and choice (ethics of justice) and they did so largely by thinking through care relations, both interdependent and dependent, as a way to imagine alternative subjectivities in the world. The political scientist Joan Tronto (1993), for instance, expands on the ethics of these relations to describe "a world that includes our bodies, our selves, and our environment, all of which we seek to interweave in a complex, life-sustainin web" (p. 103). For many feminist philosophers, sustaining our bodies, our selves, our environment, and more recently the cybernetic incorporation of technology, points towards a complex network of interrelation that is predicated on a framework of dependency. The Autonomist Marxist Silvia Federici (2008) has called

[35] https://www.gov.uk/access-to-work

attention to the increasing indistinction between paid work and unpaid reproductive labor in today's economy. The uncertainties of transcriptive work are not only viewed as necessary by the Federal law, but the same legislations have yielded a cache of transcriptive work completed by increasingly-precarious crowdsourced laborers online. Whereas Federici reflects on the rise of "flexi time" as on par with flexible forms of accumulation and production on a global stage, the decay of gender-segregated work has been mobilized by the industrial system becoming increasingly discontinuous and fragmented. By contrast, the differentiation between transcriptive work and other forms of gendered labor is such that the "flexibility" of economies of production also indexes its austerity politics in ways that demonstrate the welfare state's neoliberal agenda.

Thus I ask, should transcriptive labor be understood as a form of care? Does interpretive work itself have an *a priori* moral obligation? In 2010, for instance, the Obama Administration introduced the Accessibility Act to secure and broaden the definition of access to include the production of closed captions and audio description as inclusive practices. The terms "inclusion" and "access" were subsequently added to the liberal lexicon of equality and diversity (Titchkosky, 2011, Fritsch 2013; Fritsch, 2016). The Accessibility Act aimed to improve access for disabled consumers, but as a result of increased access, the changing pace of working conditions has meant that access workers are increasingly faced with precarious employment. Outsourcing real-time captioning to anonymous workers not only reveals the economic impacts of access labor such as high production costs, but indicates the ways that real-time captioning is not only an economic matter but a *political* matter. The precarity of transcription and caption work that one finds among access workers resembles the kind of sexual division

of labor that one sees among other “care” professionals. This is why, throughout this dissertation, I have identified stenographers, sign language interpreters and audio describers as access workers.

Even as the development of assistive technology does not neatly parallel with debates around the ethics of care, scholars from science and disability studies have historically moved between these ethical questions to deconstruct technological determinism for people with disabilities. This is why the construct of collegial intimacy reviewed in the previous chapters reveals a coordination of access support by the availability of cybernetic labor rather than the existence of technology alone. In this chapter, I analyze the *moral* framework and intricacies of the human-machine relation in the production of access in order to push back on the deterministic notion that access is realized simply through the combination of human labor and technology. In order to understand the complex web of bodies and selves that constitute access work, this chapter shows the progression of three interwoven threads in understanding access work within a feminist ethics of care: from definitions of care and care work, to the “feminist ethics of care” debates instigated by feminist philosophers during the early 1980s, to the recent uptake of “care” as a methodological concern within feminist science studies. It also uses concepts drawn from disability studies and from crip theory to interrogate the moralistic underpinnings of the feminist ethics of care debate.[36]

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[36] “Crip” and “disabled” here are used to denote multiple standpoints rather than the assumption of homogenous identities framed by a political sensibility.

The Ethics of Care

The psychologist Carol Gilligan (1982), an early contributor to the ethics of care debate, recognized that women and their experience were crucial to informing the moral significance of a network of dependency. Moral theory, as the underpinning of the ethics of care, suggests that the maintenance of relational networks is vital for the well-being of those who provide care and those who are recipients of care. Gilligan's seminal text *In a Different Voice* begins to situate a woman's "place" as "that of nurturer, caretaker, and helpmate" (p. 17). The ability to care for others, a theme we will revisit with Kittay (1999), not only relies on relational networks of care as those described by Gilligan, but acknowledges the powerful dynamic of dependency. The ambition of the feminist ethics of care went beyond debate, and imagined resolving moral conflicts through direct relations of care, which allowed women to deliberate on the interplay between the ethics of justice (civil justice) and the ethics of care (social responsibilities and relationships). During the early 1980's, this was poignant in light of the tenure of Reagan's free-market policies that aimed to privatize social reproduction by shifting the personal responsibility of care and dependency onto the individuals themselves (Duggan, 2003, p. 14). Even though transcriptive forms of labor are not held in the same regard as intimate forms of care work, there are implicit expectations to demonstrate affective labor when completing transcriptive labor. The neoliberal shift towards the rhetoric of *personal responsibility* has created an increasing ambiguity around the nature of transcriptive labor: Is transcriptive labor performed for the state or for the (private) consumer? Is it a form of bureaucratic labor or a form of personal assistance? Are transcribers simply reproducers of texts or are they creative knowledge workers who actively assign

meanings to the text? In this instance, access workers (see chapter two) are expected to provide civil support for emergency workers during Hurricane Sandy, but the sign language interpreters are expected to deliver it with a minimum of affect. To disregard the cultural agency of the sign language interpreters would be to assume that access workers only function as a medium of information. Clearly, to disavow the cultural agency of the sign language interpreters and their Deaf audience denies the importance of both Deaf culture and community.

A provocative alternative to the ethics of care debate was introduced by the disability studies and Deaf studies scholar Lennard Davis (2002) through his theory of *dismodernism* in his book *Bending Over Backwards.* Instead of thinking of disability as the lowest common denominator as a way of defining social differences, Davis considers that all non-standard bodies are dependent subjects. Davis conceives of a *dismodernism* in which all types of bodies subvert the ideal of the standard body. Davis offers dismodernism as an alternative to postmodernism in order "to create a new category based on the partial, incomplete subject whose realization is not autonomy and independence but dependency and interdependence" (p. 275). Even though Davis's philosophy is somewhat consistent with the feminist ethics of care, he does not directly engage with this debate to describe the shift from autonomy to dependency; rather, he reconceives how the commodification of care defines bodily differences. The core principles of dismodernism are illustrated through three concepts, first – care *of* the body (needing to buy hygiene products), care *for* the body (institution of medicine), care *about* the body (as Davis's writes: "being attentive to issues raised here, most important and subsumes other two") (pp. 273-275). In contrast to the feminist ethics of care

debate, Davis thinks dependency not as the enabling condition of a moral framework but as subject to (neoliberal) commodification. If all bodies are denaturalized, seen to be dependent (through market relations and elsewise), and differentiated by the commodification of care, then disability cannot be thought within a narrow binary in opposition to an ideal/standard. With *disability justice* in mind, we find that the *ethics of dismodernism* work towards developing an intersectional mode of analysis for disability studies scholars.

To momentarily bracket the discussion of dismodern subject, I want to deliberate on the specificity of dependency work as coined by the work of Eva Feder Kittay and Ellen K. Feder[37] (1999; 2002; 2011). In Kittay's *Labor of Love* (1999*),* the philosopher engages with the ethics of care debate based on her own experience as a mother of a disabled child. The philosophical uptake of "dependency workers" departs from the essentialist connotation often held between women and their reproductive labor. Following the first wave of the feminist ethics of care debate, disability studies scholars warned against the progression towards affirming interdependency, which for some, including those with disabilities, young children, or members of the elderly population *are at times already unavoidable* and does not resolve the problematic of access work.

The suggested lack of choice here appears as paradoxical when the Independent Living Movement (emerging in the 1970s) defines independence as having choice and control over the assistance required. Choice and control here are also

[37] For further significance of dependency workers in disability studies see, Teppo Kroger's Care research and disability studies: nothing in common? Critical Social Policy, Vol. 29(3): 398-420. Stacy Clifford, Simplican, 2015. Care, Disability, and Violence: Theorizing Complex Dependency in Eva Kittay and Judith Butler, Hypatia 30 (1): 217-233. Simplican, Stacey Clifford. *The Capacity Contract: Intellectual Disability and the Question of Citizenship*. Minneapolis, Minnesota: University of Minnesota Press, 2015. Further works have considered the labor of love (Graham 1983), dependency workers (Kittay 1999; Kittay and Feder 2002), and an analysis of sociopolitical policy from the standpoint of care (Tronto 1993).

aligned with the ethics of the social model, which on these terms would assert that disabled people do not *want* or *need* “care” but rather want their rights as citizens recognized. This discourse alone, for many advocates of the Independent Living Movement is known as essential to being considered as equal and productive citizens across Northern America and Western Europe. To live independently with choice and control over one’s individual’s autonomy engenders an international framework for people with disabilities – a model later adopted by United Nations to formulize their own disability rights agenda.

The feminist ethics of care debate disputes this rhetoric of independence by recognizing that interdependent relationships and their associated responsibilities served as a critique of complete autonomy, with independence and individual rights seen as being based on a masculine view of people as separate from each other. Kittay and Feder (1999) intervene in this debate to make sense of the imbalance shared between those who provide the *labor of care* with those that are the *recipients of care*. As Kittay (1999) further writes:

> Dependents, require care… questions of who takes on the responsibility of care, who does the hand-on care, who sees to it that caring is done and done well, and those who provides the support for the relationship of care and for both parties to the caring relationship – these are social and political questions… how a social order organizes care of these needs is a matter of social justice. (p. 1)

Reflected in the quote above, dependency and care according to Kittay are interconnected to “a matter of social justice.” To couple care with social justice here reflects feminist ethicists’ theoretical commitment to care as a moral virtue possessed by some individuals. Even though a moral commitment remains a consistent theme in

the ethics of care debate, the development of dependency workers is a useful addition to such debate that unsettles the familiar continuum which locates private care as a devalued space, but opens the feminized categories of work performed by both women and men as unpaid and underpaid labor (Cartwright, 2008) Feminine categories of work must be situated more broadly within a spectrum of labor practices beyond the domestic sphere, to include the work of teachers, personal aides, and more importantly, access workers.

DEC 3 1981
SPRINGFIELD LEADER
Springfield, N.J. W

Her priority is helping the deaf

By PHILIP HARTMAN

How can a deaf person call a hospital emergency room and obtain assistance in a life and death situation?

Cynthia Jeffrey of Springfield, employed as an accountant at Bell Laboratories in Murray Hill, has been asking that same question of area hospital administrators. Jeffrey has a unique stake in the answer she receives, because she is deaf.

Jeffrey, along with Richard Herring of Basking Ridge, a rehabilitation counselor with the state Division of Vocational Rehabilitation Services in Newark, were responsible for the recent installation of a TTY in the emergency room of St. Barnabas Medical Center in Livingston. Herring, who also is deaf, serves as Jeffrey's interpreter in their push to have TTYs (teletypewriter machines that can send and receive messages through telephone lines with the aid of a phone hookup) installed in area hospitals and other facilities where deaf persons may require information or assistance.

Although Jeffrey and Herring have been informing hospitals about the need for TTYs, the devices are actually required by law under section 504 of the federal Rehabilitation Act of 1973.

Jeffrey said that's how she became involved in promoting the TTY. "A few months ago at the National Association of the Deaf...I went to participate in a section 504 training program that is to inform the hospitals, police and fire departments that they must have a TTY."

Herring explained that a TTY, which hooks to a telephone receiver by an acoustic cradle, can send tones that correspond to the letters on a keyboard. The keyboard on a TTY is used to type a tone message, which is sent over the telephone line and received by another TTY, where it appears as a "printout." The message sender also can see what he is typing on a lighted "display" on the top of the TTY.

"I don't want to be bothered writing the message down," Herring said. "(I like being able to) just look at the screen and read it later."

If a deaf person with a TTY wants to call the hospital he can dial a special number and the message will be received in the emergency room with teletypewriter equipment.

Jeffrey said because TTYs are so important to the deaf, the two won't stop with their success at St. Barnabas. "We'll keep going and going and going to aid the deaf citizen in any way possible. It's not an easy job, but it's number one on our list."

Jeffrey also said that they have talked with officials at Morristown Memorial Hospital and are waiting for word whether a TTY will be installed in that emergency room.

They added that their efforts will be concentrated in areas where there is a large population of deaf people. In the metropolitan area, the counties with the most deaf residents are Essex and Bergen, with 27,473 and 27,320.

Herring also said, "On January 13, Cynthia and I are going to Somerville police to inform them about the merits of having TTYs to help deaf and hearing-impaired who cannot use regular telephones to ask for assistance in the event of an emergency."

Besides satisfying a vital need for the deaf to cor municate with the hearing over a long distance, Her ing stressed, such devices may allow the deaf to more easily what the hearing do every day and he dispel some of the myths surrounding deaf people.

"The hearing do not understand deaf people ha made tremendous benefits to society for the hearin people," Herring commented.

He said, however, that hearing people may nev consider how a deaf person can do something simp like call information for a telephone number.

They explained that the phone company emplo operators whose job is to give information to de people with TTYs for making telephone calls, and th service is the same as a hearing person woul receive.

Jeffrey said another service for the deaf a volunteer TTY operators, called "deaf contacts, who act as go-betweens for the deaf.

"If someone calls my number and a light flashes their TTY, that means the line is either busy or the is a recording—they can then call the TTY operat and ask if that was a recording. It's the operator's d ty to inform them of the message that was left."

Jeffrey added that some of the other places th can be called on a TTY are Amtrack, American E press and libraries.

"You can even call a senator."

Jeffrey and Herring will continue to inform th hearing who don't know about the TTY, they sai "because it's life saving."

OWING HOW IT'S DONE—Richard Herring, left, and Cynthia Jeffrey nonstrate how to make a phone call with a TTY. The phone receiver is in ce in the cradle and the message may be sent by the keyboard through the eiver. (P oto by Philip Hartman)

Figure 4.1 [Image Description]: The above image, from December 1981, is a reproduction of a newspaper article with the headline: “Her Priority is Helping the deaf”. In an image on the left, a woman (presumably the operator) is depicted seated in front of a small text telephone and turning towards the camera. To the left of the operator, a man in a suit is shown seated on her desk above her. The assistive technology including telephone and text telephone are placed on the desk between them. The subtext below the image reads: “Showing How It’s Done.” Published in Springfield Leader [Springfield, NJ] (Dec 3, 1981). From the Deaf Collection and Archives, Gallaudet University.

The field of stenography has been subject to this dual process of commodification and feminization. Encounters with real-time stenographers in academic

settings revealed that, with the exception of one, the majority of the stenographers employed at the university are women. These numbers are similar in the US's court rooms, as the national survey of judges and court reporters have found that ninety percent of stenographers employed were recorded as female workers (2011). In Downey's systematic overview of the three main speech-to-text systems, his study reveals that the work conditions of real-time stenographers in academic classrooms were largely shaped by the masculine space of the courthouse. In other words, the monetary value of stenographers' work in media and particularly education is only obtained once access workers distanced themselves from the feminization of access work (as associated with affective labor). In other words, courtroom stenographers had to distance themselves from the association of care work to earn "male"-level wages. Collegial intimacy, as a form of affective labor and "caring for," repairing, and maintaining the job dictionary, which is necessary to ensure the quality of real-time captions for d/Deaf and hard of hearing consumers, therefore contrasts with the defeminization pursued by the courtroom stenographer. Courtroom stenographers maintain the value of their labor by retaining possession of the coded transcripts that they record during legal proceedings, which are only translated into a readable format when it is purchased by various courtroom actors. In the courthouse, self-employed stenographers and their labor are therefore the only means to retrieve and decode the stenographic data, protecting the commodity value of transcription. (Downey 2009) In the classroom, however, once stenographers form relations between their job dictionary and their client with specific discursive needs – both their labor and dictionary become unique commodities for the ease of real-time translation in the classroom. The political

economy of access work in the classroom is thus very different than the one in the courtroom. Nevertheless, because courtroom stenographers, based primarily in Washington D.C., comprise the bulk of the 20,000 members of the National Court Reporters Association, the commodity value of stenographic labor that they negotiate determines the national labor price for stenographic work in the academic and educational fields.

Access labor presents a problem for several genealogies on care, dependency, and disability. In the feminist ethics of care debate, access work is implicitly collapsed into a form of care, which celebrates the moral value of care but disavows access as a laboring and economic practice. In the ethics of dismodernism that Davis proposes as an alternative to the ethics of postmodernism, the universalization of dependency similarly fails to engage with the labor production of access, even though he does important work in beginning to conceptualize care as a consumer commodity. Disability studies more broadly has displaced the rhetorics independency with a theory of interdependency but retains the disabled subject as the object of study that disavows the process of the production of access. By fleshing out the figure of the stenographer in the courtroom, we were able to look at the labor of access outside a relation to disability, and thus outside the moral frameworks of care and dependency. The celebration of care work is not supported by the studies of stenographers work and analyses of the political economy of access, whether in the courtroom or classroom, whether in the presence of disabled subjects or not. Defining access workers not as moral actors, but rather as economic actors foregrounds the labor that produces access, and who produces it.

Amanuensis: Enslaved hands

> People who are really present but invisible in an activity are those whose role is considered to be unimportant. In the case of laboratory work, the price of technician's continued invisibility is an impoverished understanding of the nature of scientific practice. (Shapin, 1989, p. 562)

The next section draws on the Latin etymology of *amanuensis* to describe the theoretical transition from a feminist ethics of care to a feminist ethics of access. The term *amanuensis* describes a person(s) who write or type on the command of another, or more precisely an etymology to describe the dyadic relations between (servus) "amanu" as "slave of handwriting" and secretarial support (+ ensis) "belonging to." (OED) As laborers employed during the 17th century, the amanuensis served as an early archetype of "access workers" as defined by their association with the production of knowledge. By doing so, the figure of the amanuensis in this analysis further clarifies specific types of access workers associated with other forms of waged labor. Expanding on the previous category of access workers in this chapter as associated with genealogy of care, the following includes a cohort of workers similar to the amanuensis, such as scribes, transcribers, clerical workers, laboratory technicians and stenographers. Their particular association with paid labor is on par with post-industrial conception of knowledge workers. In short, we can imagine the notion of amanuensis from the conception of modern science pertaining to the 17th century to the post-industrial conception of knowledge workers as understood today. As explored in previous chapters, the embodiment of access work has touched on the corporeal work

of women workers to identify how the midcentury production of labor has implicitly been associated with the abstract disassociation of the workers' hands from the site and process of production.

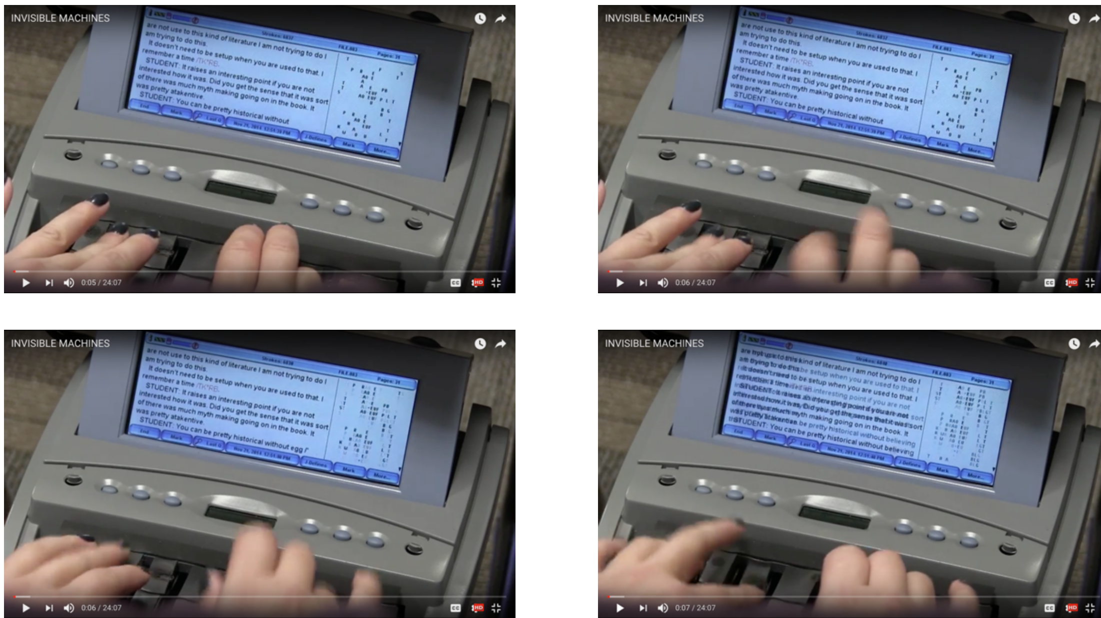

Figure 4.2 [Image Description]: The series of images above depicts pair of white hands working over a grey stenographer keyboard. In the upper frames of the all four images, a blue backlit screen reveals real-time texts produce by the stenographer on the left. The text is punctuated with multiple speakers through capitalization as student. On the right of the screen, there are singular letters marking the stenoform to produce real-time captions for their deaf readers. *Invisible Machine*, directed by Yelena Gluzman, 2015.

The temporal dissonance in the four images above depicts the flurry of small and discrete hand gestures as performed by the stenographer seated at their machine. The images' focus on their hands concretely demonstrates how corporeal embodiment of labor is rendered as separate from the body. The disassociation between the *enslaved hands* and the conduct of their labor practices foreshadows a growing uncertainty about where labor ends and who it belongs to that parallels the historical advancement towards automated labor in the last several decades. The stenographic workers and their subjecthood are reduced to being the reproducers of texts, as echoed by the science studies scholar Lochlann Jain (2006), who describes the process of transcription and clerical work completed by women and how they are understood to function as a medium or vessel for transcriptive labor. That is, the very embodiment of

women' transcriptive labor is more precisely understood as a vessel for other peoples' thoughts via male-to-female dictation. As previously argued, Gramsci described how the loss of agency for stenographers refers to a distinct phase of post-Fordism that signals the entry of the machine along with the rational production of labor, a technological advancement that allowed many women to enter the workplace (1967). The reduction of the stenographer's work (as clerical workers) to the conductor for masculine intellectual labor is confirmed by Jain (2006), who writes: "The woman cannot hear the content of the young man's message – it is not within the purview of her as a worker. She (the worker) is there not to comprehend but to transcribe – she is the medium of the change of medium, voice to text, content to inscription" (p. 104). As an example of intermodal translations: "voice to text" and "content to inscription" holds an affinity with Gramsci's fantasy of automation, in which he marveled at the possibility of stenographer's reproduction of "each letter" and "word" as non-signifying texts, which on Gramsci's terms, liberates or "emancipates" the worker. On these terms, the reduction of letters and words to non-signifying texts in fact does not have the emancipatory quality that Gramsci once hoped for, but rather the process of automated texts has become a primary unit of economic exchange and the expansion of capitalist market relations.[38]

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[38] The transfer of speech to text has certain limitations that are important to note. The CART (Communication Access Real-time Translation) operator types using a stenotype keyboard that operates at a different speed than that of the words spoken in the room. The time between the speaker and the typed speech differs, often significantly. The seamless interactions between speakers around the seminar table presumes the ability to hear the subtle, culturally embedded pauses in the space between a speaker's comments, and such practices assume that tacit knowledge is similarly transferred through real-time captioning.

To consider access workers as either intermodal translators, a medium, or as a pair of enslaved hands struggles to compute with Gramsci's views of emancipated work. Quite simply, the thesis of collegial intimacy cannot support Gramsci's optimistic views: a close analysis of stenographers' labor practices shows how the affective labor implicitly required to reproduce texts already adds real-time semiotic meaning to these non-signifying words and letters. This does not promise to resolve emancipatory efforts, but points towards the growing omnipresence required by access work, to the perverse positioning of the transcriber as an "all-knowing subject." I have been framing d/Deaf and hard of hearing users as consumers to reflect the growing purchasing power of access. Moreover, the link between amanuensis to the notion of enslaved hands gestures to the power dynamic required to produce accessible texts (via captions and description). I argue that the notion of *enslaved hands* serves as an interdisciplinary synonym to describe a hierarchy of caregiving that draws on an intersectional analysis of gender and race. The women's studies scholar Evelyn Nakano Glenn (1992; 2010) has drawn on her own analysis of racial-gendered coercions to consider the constraints of women's choices pertaining to the kinship of care. For Glenn (2010), the varying degrees of coercion, including the racial allocation of gendered labor, reveals a political economy that procures and secures care by ensuring cheap, low-waged and free labor. Sourcing the kinship of care among the familial unit and beyond according to Glenn equates the labor of care with "weaving and reweaving the social fabric" (p 15). While the quality *of having to make do is* consistent with the politics of austerity, the warning that comes with the performance of care for Glenn is the following: who is completing this labor and what is the human cost of this labor?

The depiction of the disembodied hands (in Figure 4.2) must be viewed in the context of the mass advertising of personal technology during the early 1990s. As Jain observed in their chapter on *Keyboard Design*, the corporeal representations of women workers (apart from their hands) were largely omitted from early advertisements of personal computers to foreground the agency driven by the growing culture of masculinity and corporatism.[39] With the rise of scientific management, female entanglements with office technology shifted their position as the medium of corporate culture, but more importantly managed the efficiency of extracted labor from particular type of bodies (Jain 2006; Murphy 2006). The extraction of labor on this scale was further managed by the division of gendered work produced by the corporate use of office spaces – this is partly inspired by the midcentury organization of space, when women were explicitly group together in the office bullpen.

The spatial relations shared by these typists and stenographers are adjusted to accommodate their d/Deaf and hard of hearing consumers, from the fixed abode of office spaces to the increased mobility of stenographers found in education work. The visibility of these access workers has shifted from producing access behind the scenes (see Figure 4.2) to acquiring portable stenographic equipment to increase their mobility from classroom to classroom (Downey, 2009). Now, the most recent trend of working off-site has returned stenographers and their discrete capacity of their labor back behind

[39] Large technology companies including Apple and Microsoft have increasingly adopted policies relating to accessibility project to improved online services for disabled clients. Through the hackistic events, the companies have mostly developed assistive technology beyond the remit of their focus on personal technology. The result of these workshops – production companies have worked with disabled people to show depicts men using the new equipment with little input from female members – unless were depicted as caregivers for the male users.

the scenes. This has only redoubled the disavowal of labor of access workers in knowledge production.

Bodies and Minds: Knowledge makers

The distinction between the conception of midcentury office workers in contrast with the renaissance conception of amanuenses is relevant to define the meaning and complexity of enslaved hands when reproducing texts, in particular when those hands come into contact with the process of knowledge making. I draw on the term amanuensis to describe my own experience of working with such assistants during my formative years of education, in particular when completing educational examinations. When working with disabled students, amanuensis are/were specifically employed to depersonalize varying forms of dependency between disabled students and personal assistants and to disembody and reduced assistant's subjecthood to a "pair of working hands" in exam conditions.

The iterations of enslaved hands, as we saw in the imagery of personal computing during the early parts of the 1980s, moreover aligns the depiction of disembodied hands with rhetoric that locates the attainment of independence by disabled subjects in the image of embodying the mind/body split, particularly when disabled people work with amanuenses as access workers. The amanuensis ideologically and fantasmatically stands in as a physical support for the disabled body but does not register as a thinking contributor to the production of access. The science and technology studies scholar Hélène Mialet (2012) has drawn attention to the ongoing curiosity that the late Professor Stephen Hawking is bound to his work as a

disinterested scientist, as Mialet writes, who can “transcend political, social, and cultural spaces that their bodies inhabit in order to live in the unadulterated world of the pure mind” (p. 3). Hawking’s engagement with science for some was understood to “liberate his body” and “emancipate him” from his quotidian existence to focus his energy on “the ultimate laws of the Universe” (pp. 2-3).

Figure 4.3 [Image Description]: A black and white computer-generated image of, in the foreground, a wheelchair with a mounted text to speech computer, and in the background a black silhouette is depicted walking away from the wheelchair into space.

How Hawking’s mind was presumed to function for outsiders is bracketed in Mialet’s (2012) ethnographic study in order to explore how he distributed his agency across his assistants, computer, wheelchair, the university, and other institutional

apparatuses in order to complete his work. The study reveals the distribution of Hawking's production of knowledge was intimately tied to the "collective and social enterprise" of laboratories. Thereby, this "collective agency" managed the perception of Hawking's work, concealing the extensive care work that he requires in order to mirror the ideology pertaining to "independent" (i.e. disembodied) knowledge production that was both projected and validated by the public. As Mialet (2012) reviews:

> If the word solitude emerges in written accounts by and about scientists, it is simply a matter of concealment (deliberate or not) necessary for the validation of knowledge: the assistants are hidden, the conversations are effaced, the memory is reinvented, the mythical accounts circulate. (p. 4)

In the quotation above, Mialet's account underlines the often-cited contradiction pertaining to the concealment of assistants (access workers) to emphasize the desired agency belonging to the lone producer of knowledge. The most salient moment of this study (for disability studies) is found when Mialet described the occurrence of Hawking's agency as only appearing when he is described resisting the construct of his collective (p. 43). Mialet contributes to the emerging thesis of collegial intimacy by describing a distributed system that is thoroughly politicized: Hawking's agency is distributed across multiple subjects (family members, access workers, fellow research peers) and technologies (wheelchair, text-to-speech system) that are in turn shaped by the liberal discourse of independent (including disabled) subjecthood, the mind/body split, and the associated disavowal of access work.

The construct of such collective agency is evident in Steven Shapin's *Invisible Technician* (1989) to describe the employment of amanuenses in the philosopher Robert Boyle's laboratory during the early period of enlightenment in London. Shapin

finds the principle investigator, Boyle, documented his observation of amanuenses employed in his laboratory for their "good hands" and "eyes and judgment" and their "feeling for" data and apparatus (Shapin). Boyle's employment of the amanuenses' *enslaved hands* are labored to *touch, visualize and comprehend* their data on the behalf of the principle investigator. Historian of information science, Ann Blair (2010) notes early modern scholars including Boyle often composed texts by dictation because of their poor eyesight. In contrast, several centuries later, in 1945, the American engineer Vannevar Bush praised the freedom of autonomy offered to investigators by amanuenses' support, as he recounts operator of keyboards (not named as a stenographer) for allowing "investigators" the mobility to work "hands free" (Bush, 1945) Likewise, Ann Blair's *Too Much to Know: Managing Scholarly Information before the Modern Age* (2010) considers how such an emerging category of work reflects the early formation of information practices that inform our current understanding of the computer age. In the accounts listed above, the description of Boyle is shown as forming dependency with his workers due to poor health, whereas Bush marvels at the opportunity of increased autonomy offered by the "feminization of labor." In addition, Blair touches on the work of stenography simply as an "auxiliary task" and a profession not be "mastered" (Chavigny, 1920). The support of such workers "emphasized that machines for dictation, shorthand, and calculation were all essential to avoid wasting "intellectual strength" in the "secondary tasks" of office work" (Blair, 2010, p. 207). During the early modern period, the labor of amanuensis and transcribers was first realized by the assistance of family members, particularly wives and daughters. The flow between independent autonomy or dependency for the identities of Boyle's

technicians, Bush's keyboard operators, and Blair's descriptor of familial assistants all continue to remain anonymous. We can thus appreciate how the invisibility of their labor equates to a category of knowledge workers ranging from scribes, transcribers, laboratory technicians to stenographers.

With these workers in mind, we can now consider the collective enterprise of knowledge making as ranging from Hawking's distributed identity to the production of Boyle's work produced in laboratory depending on amanuenses. How we make sense of dependency is mostly structured by the liberal relation to models of independency. As previously discussed, Mialet (2012) described the only appearance of Hawking's agency in the instances that he resisted his collective, as when he disputes his assistants or complains about his machinery. If his resistance occurs though interpersonal relations or mechanical failures they are most often perceived as a resistance to his own dependency. The rhetoric of dependency draws a mostly implicit comparison with the analogy of the prosthesis, and on the need to complete the disabled body as whole with the fitting of compensatory prostheses or with the provision of assistive technology. (Jain 1999) The close association of the prosthesis with medicine has lead disability studies scholars to question the normative desire for a cohesive body.[40] How dependency is interwoven into the fabric of technofetishism,

[40] Discussing the difficulty of understanding Hawking as a technologically-mediated body, Jain quotes the work of Roseanne Stone (1999) to situate how the rhetoric of the prosthesis displaces Hawking's subjectivity: "Hawking doesn't stop being Hawking at the edge of his visible body...a serious part of Hawking extends into the box in his lap. In mirror image, a serious part of that silicon and plastic assemblage in his lap extends into him as well… No box, no discourse; in the absence of the prosthetic, Hawking's intellect becomes a tree falling in the forest with nobody around to hear it. On the other hand, with the box his voice is auditory and simultaneously electric... Where does he stop? Where are his edges?" (Quoted in Jain 1999, 40).

science and technology studies scholars such as Lochlainn Jain have compiled an extensive body of work to connect the ways in which humanity and technology are interwoven as a new canon (Jain 1999; Ott et al., 2002; Sobchack, 2006). As explored above, the narratives that “free” Hawking’s mind from his disabled body are found to be consistent with the liberal humanism concept of dependency. While the main scope of this discussion is concerned with the examination of access workers and their labor, it is worth noting the normative assumptions that are made when conversing between disability and technology because the very analysis of the politics of access work deconstructs the assumption that (apolitical) technology alone can stand-in for human labor. For one, Jain’s work on imaginary prosthesis assumes the technology of voice, in this instance Hawking’s voice, as being one without training or discipline, and instead suggests that the training of a voice is fundamentally prosthetic (for some the voice is trained through the medical support of therapy, for instance), a technology that is “accented, and pitched through many screens of personal, educational, and cultural intervention” (Jain 1999, ibid). I foreground Jain’s analysis as a reminder of the ongoing assumptions render by the linkage between medical and technological determinism.

To do so, I cautiously draw on determinism in order not to conflate the failure of assistive technology as another iteration of dependency. In order words, the provision of assistive technologies does not provide autonomy alone; neither does the replacement of human labor with automated labor adequately address the complexity of producing access. Thereby, when considering the complexity of amanuenses’ labor (as

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Stone’s pathological description of Hawking’s lecture is bound up with the analysis of his voice as being entrapped “in the box” and extended further by the depiction of his voice merely as a passive “silicon and plastic assemblage in his lap” (quoted in Jain 1999, p. 40).

access workers) and their intimate proximity with knowledge production, I argue their labor predates our current understanding of the dependency of care. In other words, the employment of amanuensis is derived from the outset of early modern science pertaining to the seventeenth century to the post-industrial conception of knowledge workers as understood today. I argue that access workers, as understood through the work completed by amanuenses and stenographers, are not simply instruments of employment nor the neutral medium of access, but produce access through their hands, eyes and their affective use of judgment that have been abstracted from their body to disavow their subjecthood. This heightens the political sakes of collegial intimacy at the core of this dissertation, for example, stenographers can only access the capital of their own labor by performing ongoing maintenance of their dictionary software, an affective use of judgment that is abstracted from the consideration of access. (see chapter 3) In contrast, for d/Deaf and Hard of Hearing consumers, the capital of stenographer's labor only becomes meaningful through the ongoing maintenance work of the job dictionary – and insofar as the job dictionary uniquely codes the social dynamics of the classroom and the interpersonal relations between peers and the disabled subject, this abstracted labor is central to constituting collegial intimacy.

To conclude with an ethics of access is an opportunity to describe a form of care outside the feminist ethics of care debate. Drawing on the complexity of collegial intimacy, I define the emergence of access workers not as moral actors, but rather as economic actors to foreground the labor that produces access, and who produces it. As amanuensis came to populate seventeenth century homes, this further configured the emerging category of workers related to knowledge production and the reproduction of

texts. Even though the role of amanuensis in these domestic spaces became blurred with reproductive labor, reproducing and copying texts, and performing dictation and filing, had fundamentally become feminized paid labor. The focus of political economy of access among these chapters have presented difficult trajectories for genealogies of care, dependency, and disability. The amanuensis' capacity to reproduce a text is not typically considered as a labor of care and is not guided by the same ethical compass as dependency work, whether in the scholarly literature or in the social practice itself. In the ethics of care debate, access work is implicitly collapsed and understood as a form of care, which celebrates the moral proximity of caregiving through social justice-focused frameworks, but quietly disavows the laboring and economic practices involved in the production of access – that is, access as a commodity. In response, by fleshing out the figure of the stenographer in the courtroom, we were able to look at the labor of access outside a relation to disability, and thus outside the moral frameworks of care and dependency.

CONCLUSION

Wages for Access Work

The previous chapters offer a contribution to the fields of critical disability studies, labor studies, science and technology studies, d/Deaf studies, and American studies. These studies have each engaged with the formation of transcriptive work provided by stenographers. This dissertation considers a feminist study of affective labor and ethics of care debate to argue that the precarity of this type of work has proliferated a new species in the sexual division of labor: access workers. Following the emergence of access workers, and through my analysis of their labor, this dissertation project considers the practice of producing speech-to-text access in archival work, employment of mixed methods and methodology, including auto-ethnography, and the study of socio-material production of access.

Among these chapters, my analyses both leans on and in important ways departs from scholarship on the feminization of labor as informed by the ethics of care debate in order to develop a feminist ethics of access. This project attends to research questions concerning the move towards an *ethics of access* that coalesces varying understandings of labor practices as shaped by the genealogies of care, dependency, and disability. I consider the category of work defined by dependency workers (Kittay 1999, 2002) to inform my own thesis on access workers, and how such emergence of work presents a problem for these genealogies. Specifically, this dissertation engages the ethics of care debate (and by extension, the first wave of disability studies in the late

1970s and early 1980s) that has collectively tackled the politics of dependency in order to underplay the significance of interdependency in order to focus attention on the labor of access. Defining access workers not as moral actors, but rather as economic actors foregrounds the labor that produces access, and who produces it. I have tried to bring attention to the formation of access workers to engage with the complexity of their negotiation of their positions as economic actors. Access work is an expanding category of accelerated by the contemporary information and knowledge economies as well as the increasing needs for mediated access online.

This is nowhere more evident than in how the shift from material labor to knowledge labor has increasingly fragmented and alienated the division of labor into smaller task-based segments of work which seem at first glance to be a suitable labor platform for disabled workers. But as Andrew Ross and Sunaura Taylor (2017) confirm, as "an ideal workforce for this mode of extraction/production, [disabled workers] face many barriers in navigating the physical world and are met with so much discrimination, that they have many reasons to be active online and may even be willing to take on tasks unwanted by others" (p. 87). They build on this claim by drawing on the work of disability studies scholars Davis Mitchell and Sharon Snyder (2010) to consider the promise of online inclusion as co-opting the "undesirability of life in disabled bod[ies]" as a prime target from the standpoint of the immaterial labor market (p. 189). I argue that, even though the promises of digital inclusion have largely gone unmet, the fact that disability does not disappear in cyberspace points to the continued need for access workers and thus to an online (and because it is often outsourced, global) expansion of the political economy of access. The provision of access on social media, for example,

via the provision of visual descriptions, unlike the stenographic profession, is a form of immaterial labor not recognized or regulated as a discrete field of labor, but rather maintained by the upkeep of informal collegial networks – everyone from activists to friends perform this labor of description. How the labor of access is legitimized by the enforcement of a social/collegial network, or alternatively through ADA mandates and state support, blurs the boundaries of who is charged with producing and enacting access.

The preceding chapters have also revealed how the relation to ways of knowing across varying speech-to-text systems are animated through human-machine interactions, and mediated by sociomaterial networks informed by disability legislations and collegial infrastructure. The advancement of automation further hampers the nuanced work produced by stenographers, but the law does not recognize the need by the access worker to develop the collegial intimacy that bridges the automated activity of textual reproduction to the contextualization and thus affective production of meaning. These developments and the close analysis of stenographers' labor practices conducted in this dissertation shows how the affective labor implicitly required to reproduce texts already adds real-time semiotic meaning to these non-signifying words and letters. This does not promise to resolve emancipatory efforts, but points towards the growing omnipresence required by access work, to the perverse positioning of the transcriber as an "all-knowing subject." This is why the thesis of collegial intimacy cautions against Gramsci's optimistic views of how automation holds the potential to emancipate workers.

Instead, I argue that access workers, as understood through the work completed by amanuenses and stenographers, are not simply instruments of employment nor the neutral medium of access, but produce access through *their hands, eyes and their affective use of judgment*, which have been abstracted from their body resulting in the disembodiment of their subjecthood, which was exemplified by Lydia Callis, the sign language interpreter, being openly criticized and mocked for her "flamboyant" signing work. The resultant discourse that briefly saw sign language interpretation in the public eye revealed the misplaced and narrow definition of access workers held by the hearing public: that the production of access should embody discipline, discreteness and passive efficiency. From Gramsci to Federici, the well-documented precarity of transcriptive work reveals the inconsistency of working conditions endured by access workers, as well as the increasingly alienated product of their labor. As I have argued in this dissertation, any understanding of the sociomaterial assemblage of transcriptive labor must be seated within an analysis of collegial intimacy. This assemblage acknowledges the workers' alienation from their own affective labor, which is not required by the state and disability legislation, but is made necessary by the need to be considered valuable and maintain market relations with their consumers. The demands of marketing their affective labor are shaped by the midcentury gendering of access professions.

By building on the work completed by access workers, including stenographers, sign language interpreters and audio describers alike, we can begin to appreciate the production of accessible texts as an important object of inquiry for critical disability studies and beyond. Accounting for these accessible transcriptions as academic texts

presents an opportunity to broaden how disabled and non-disabled researchers can access and assess methods in their own work. The canon of proposed work might, for instance, range from close analysis of audio description that supplements the study of performances, to the comparison of transcriptive dialects across Europe. The long-term development of such projects calls for reimagining the practices of authorship and creative production to account for a new ethics that does not naturalize access as the mere absence of barriers to disabled subjects' participation in social life, but as the outcome of a mode of production and the value of access workers' material and affective labor.

REFERENCES

Adams, R., Reiss, B., & Serlin, D. (2015). *Keywords for Disability Studies*. New York: NYU Press.

Ahmed, S. (2004). Collective Feelings: Or, the impressions left by others. *Theory, Culture & Society, 21*(2), 25-42.

Ahmed, S. (2004). Affective Economies. *Social Text, 22*(2), 117-139.

Ahmed, S. (2006). Queer phenomenology: Orientations, objects, others. Duke University Press.

Alač, M. (2016). Social Robots: Things or Agents? *AI & Society, 31*(4), 519-535.

Alač, M. (2016). Points to and Shakes the Robot's Hand: intimacy as situated interactional maintenance of humanoid technology. *Zeitschrift für Medienwissenschaft,15*, 41-71.

Bailey, K. (2004). Parenting and disability: Disabled parents' experiences of raising children. Child & Family Social Work, 9(3), 312-313.

Barnes, C. (1991). *Disabled people in Britain and discrimination: A case for anti-discrimination legislation.* London: C. Hurst & Co. Publishers.

Barnes, C. (1992). Qualitative research: valuable or irrelevant? Disability, handicap & society, 7(2), 115-124.

Barnes, C. (1996). Theories of disability and the origins of the oppression of disabled people in western society. In *Disability and Society: Emerging issues and insights*, L. Baron (Ed.), 43-60.

Barnes, C. (2012). The Social Model of Disability: Valuable or Irrelevant. In *The Routledge handbook of disability studies*, N. Watson, A. Roulstone, & C. Thomas (Eds.). London: Routledge.

Barnes, C., & Mercer, G. (1997). Breaking the Mould? An introduction to doing disability research. In *Doing Disability Research*, C. Barnes & G. Mercer (Eds.), (pp. 1-14). Leeds, UK: The Disability Press.

Barnes, C., & Sheldon, A. (2007). 'Emancipatory' Disability Research and Special Educational Needs. In *The Sage Handbook of Special Education*, L. Florian (Ed.), 233-246). London: Sage.

Bateson, G. (1972). *Steps to an Ecology of Mind*. Chicago and London: The University of Chicago Press.

Bauman, H. D. L., & Murray, J. J. (2014). *Deaf Gain: Raising the stakes for human diversity*. Minneapolis: University of Minnesota Press.

Berger, R. J., Feucht, J. A., & Flad, J. (2013). *Disability, Augmentative Communication, and the American Dream: A Qualitative Inquiry*. Lexington Books.

Berger, R. J., Feucht, J. A., and Flad, J. (2014). *Disability, Augmentative Communication, and the American Dream: A Qualitative Inquiry*. Lanham, MD: Lexington Books.

Berger, R. J., & Lorenz, L. S. (2016). *Disability and qualitative inquiry: Methods for rethinking an Ableist world*. London and New York: Routledge.

Berger, R. J., & Lorenz, L. S. (2016). Staying true to their stories: Interviews with parents of children with disabilities. In *Disability and Qualitative Inquiry: Methods for rethinking albeist world, R.J. Berger & L.S. Lorenz (Eds.),* (pp. 69-86). London: Routledge.

Blume, S. (2010). The Artificial Ear: Cochlear Implants and the Culture of Deafness. New Brunswick: Rutgers University Press.

Branfield, F., & Beresford, P. (2010). A Better Life: Alternative approaches from a service user perspective. York, UK: Joseph Rowntree Foundation.

Braun, S. (2007). Audio Description from a discourse perspective: a socially relevant framework for research and training. *Linguistica Antverpiensia, New Series– Themes in Translation Studies, 6*, 357-369.

Best, S., & Marcus, S. (2009). Surface Reading: An introduction. *Representations, 108*(1), 1-21.

Burch, S., & Sutherland, I. (2006). Who's not yet here? American disability history. *Radical History Review, 94*, 127-147.

Bush, V. (1945). As we may think. *The Atlantic monthly, 176*(1), 101-108.

Cartwright, L. (2008). *Moral Spectatorship: Technologies of voice and affect in postwar representations of the child*. Durham: Duke University Press.

Charlton, J. I. (1998). Nothing about us without us: Disability oppression and empowerment. Berkeley, CA: University of California Press.

Clifford Simplican, S. (2015). Care, disability, and violence: Theorizing complex dependency in Eva Kittay and Judith Butler. *Hypatia, 30*(1), 217-233.

Clifford, J., & Marcus, G. E. (2011). *Writing Culture: The poetics and politics of ethnography*. Berkeley, CA: University of California Press.

Connor, D. J., Gabel, S. L., Gallagher, D. J., & Morton, M. (2008). Disability studies and inclusive education—implications for theory, research, and practice. International Journal of Inclusive Education, 12(5-6), 441-457.

Corker, M., & French, S. (1999). Disability discourse. McGraw-Hill Education, Open University Press (UK).

Cowan, R. S. (1983). *More Work for Mother*. New York City, NY: Basic Books.

Craig, D. O. F. T. (2001). Which way to work? Occupations, vocations and opportunities for mental health service users. *Journal of Mental Health, 10* (1), 1-4.

Creadick, A. G. (2010). *Perfectly Average: The pursuit of normality in postwar America*. Amherst, Massachusetts: University of Massachusetts Press.

Dahlgren, P. (2006). Doing citizenship: The cultural origins of civic agency in the public sphere. *European journal of cultural studies, 9*(3), 267-286.

Dalla Costa, M., & James, S. (1972). *Women and the Subversion of the Community.* Bristol, UK: Falling Wall Press.

Davis, L. J. (1995). *Enforcing Normalcy: Disability, deafness, and the body.* London: Verso.

Davis, L. J. (2013). *The Disabilities Studies Reader*. New York, NY and Abington, Oxon: Routledge.

de la Bellacasa, M. P. (2017). *Matters of Care: Speculative Ethics in More than Human Worlds*. Minneapolis: University of Minnesota Press.

Dirksen, H., Baumann, L., & Murray, J.J. (2014). *Deaf Gain Raising the Stakes for Human Diversity.* Minneapolis, MN: University of Minnesota Press.

Dolar, M. (2006). *A voice and nothing more*. Cambridge: MIT Press.

Dolmage, J. (2005). Disability studies pedagogy, usability and universal design. *Disability Studies Quarterly, 25*(4).

Dolnick, E. (1993). Deafness as culture. *Atlantic* Monthly 46. 37-53.

Dowling, M. (2007). From Husserl to van Manen. A review of different phenomenological approaches. *International journal of nursing studies, 44*(1), 131-142.

Downey, G. (2008). *Closed captioning: Subtitling, stenography, and the digital convergence of text with television*. Baltimore, Maryland: John Hopkins University Press, 2008.

Duckett, P. S. (1998). What are you doing here?' Non-disabled people and the disability movement: A response to Fran Branfield. *Disability & Society, 13*(4), 625-628.

Duggan, L. (2012). *The twilight of equality? Neoliberalism, cultural politics, and the attack on democracy.* Boston, MA: Beacon Press.

Ellcessor, E. (2012). Captions on, off, on TV, online: Accessibility and search engine optimization in online closed captioning. *Television & New Media, 13*(4), 329-352.

Ellcessor, E. (2012). *Access ability: Policies, practices, and representations of disability online* (Doctoral dissertation, The University of Wisconsin-Madison).

Ellcessor, E. (2015). Blurred Lines: Accessibility, disability, and definitional limitations. *First Monday, 20*(9). Retrieved from http://journals.uic.edu/ojs/index.php/fm/article/view/6169

Federici, S. (2008). Precarious labor: a feminist viewpoint. The Middle of a Whirlwind UC Berkeley, Public Affairs. (2017, March 1). Campus message on Course Capture video, podcast changes [Press release]. Retrieved from http://news.berkeley.edu/2017/03/01/course-capture/

Federici, S. (2008, October). *Precarious Labor*: A feminist viewpoint. In the Middle of a Whirlwind: 2008 Convention Protests, Movement and Movements. Retrieved from https://inthemiddleofthewhirlwind.wordpress.com

Finkelstein, V. (1980). *Attitudes and disabled people: Issues for discussion, 5.* World Rehabilitation Fund, International Exchange of Information in Rehabilitation.

Fine, M., & Glendinning, C. (2005). Dependence, independence or inter-dependence? Revisiting the concepts of ‘care’ and ‘dependency’. *Ageing & society, 25*(4), 601-621.

Friedner, M. I. (2015). Valuing deaf worlds in urban India. New Brunswick: Rutgers University Press.

Foster, G. D. (1989). Reflections of a group of deaf adults on their experiences in mainstream and residential school programs in the United States. Disability, Handicap & Society 4(1), 37-56.

Foster, G. D., Wadden T. A., Makris A. P., Davidson, D., Sanderson, R. S., Allison, D. B., Kessler, A. (2003). Primary care physicians' attitudes about obesity and its treatment. *Obes Res 11*(10), 1168-1177.

Foucault, M., Davidson, A. I., & Burchell, G. (2008). *The Birth of Biopolitics: Lectures at the Collège de France, 1978-1979*. London, UK: Palgrave Macmillan UK.

Fraser, N. (2013). *Fortunes of Feminism: From State-Managed Capitalism to Neoliberal Crisis*. London: Verso Books.

Friedner, M., & Helmreich, S. (2012). Sound studies meets deaf studies. *The Senses and Society*, *7*(1), 72-86.

Friedner, M. (2015). *Valuing Deaf World in Urban India.* New Brunswick: Rutgers University Press.

Fritsch, K. (2013). The neoliberal circulation of affects: Happiness, accessibility and the capacitation of disability as wheelchair. *Health, Culture and Society, 5*(1), 135-149.

Fritsch, K., O'Connor, C., & Thompson, A. K. (2016). *Keywords for Radicals: The contested vocabulary of late-capitalist struggle.* Oakland, CA: AK Press.

Gabel, S., & Peters, S. (2004). Presage of a paradigm shift? Beyond the social model of disability toward resistance theories of disability*. Disability & Society, 19*(6), 585-600.

Garland-Thomson, R. (2005). Feminist disability studies. *Signs: Journal of Women in Culture and Society, 30*(2), 1557-1587.

Garland-Thomson, R. (2011). Misfits: A feminist materialist disability concept. *Hypatia, 26*(3), 591-609.

Garland-Thomson, R. (2017). Disability Bioethics: From theory to practice. *Kennedy Institute of Ethics Journal, 27*(2), 323-339.Gitelman, L. (2006). *Always Already New: Media, history, and the data of culture.* Cambridge, MA: The MIT Press.

Gluzman, Y. (2015). Invisible Machine. University of California, San Diego.

Goffman, E. (1959). *The Presentation of Self in Everyday Life.* Doubleday: Garden City, New York.

Goodley, D. (2001). 'Learning difficulties', the social model of disability and impairment: challenging epistemologies. *Disability & Society, 16*(2), 207-231.

Goodley, D. (2009). *Ethnography: A teaching resource.* Manchester Metropolitan University. Retrieved from www. leeds.ac.uk/disability-studies.

Goodley, D., & Runswick-Cole, K. (2010). Emancipating Play: Dis/abled children, development and deconstruction. *Disability & Society, 25*(4), 499-512.

Goodley, D. (2014). *Disability Studies: Theorising disablism and ableism*. London and New York: Routledge.

Goodley, D., Lawthom, R., & Runswick-Cole, K. (2014). Dis/ability and austerity: beyond work and slow death. *Disability & Society, 29*(6), 980-984.

Graeber, D. (2001). *Toward an anthropological theory of value.* London: Palgrave Macmillan.

Graham, H. (1991). The concept of caring in feminist research: the case of domestic service. *Sociology, 25*(1), 61-78.

Gramsci, A., Hoare, Q., & Smith, G. N. (2010). *Selections from the Prison notebooks of Antonio Gramsci*. New York, N.Y: International Publishers.

Hamraie, A. (2013). Designing collective access: A feminist disability theory of universal design. *Disability Studies Quarterly*, *33*(4), 1-33.

Hamraie, A. (2015). Cripping Feminist Technoscience. *Hypatia*, *30*(1), 307-313.

Hamraie, A. (2015). Historical epistemology as disability studies methodology: From the models framework to Foucault's archaeology of cure. *Foucault Studies, 19*, 108-134.

Hamraie, A. (2017). *Building Access: Universal Design and the Politics of Disability*. Minneapolis: University of Minnesota Press.

Haraway, D. (1988). Situated Knowledges: The science question in feminism and the privilege of partial perspective. *Feminist studies, 14*(3), 575-599.

Hardt, M. (1999). Affective Labor. *Boundary, 26*(2), 89-100.

Hardt, M., & Negri, A. (2001). *Empire*. Cambridge, MA: Harvard University Press.

Harvey, D. (2000). *Spaces of hope (Vol. 7)*. Berkeley, CA: University of California Press.

Hayles, N. K. (2005). Computing the human. Theory, Culture & Society, 22(1), 131-151.

Hayles, N. K. (2008). How We Became Posthuman: Virtual bodies in cybernetics, literature, and informatics. Chicago: University of Chicago Press.

Henare, A., Holbraad, M., & Wastell, S. (2007). *Thinking Through Things: Theorizing Artefacts Ethnographically*. New York, NY: Routledge.

Hickman, L., Cartwright, L., Losh, E., Sengul-Jones, M., & Gluzman, Y. (in press). The Totem Project: Pluralizing Access in the Academic Classroom. *Critical Readings in Interdisciplinary Disability Studies,* Linda Ware (Ed.).

Hicks, M. (2017). Programmed inequality: How Britain discarded women technologists and lost its edge in computing. Cambridge: The MIT Press.

Horkheimer, M. (1972). *Critical Theory: Selected essays (Vol. 1).* London: A&C Black.

Hosking, D. L. (2008, September). *Critical Disability Theory*. A paper presented at the 4th Biennial Disability Studies Conference at Lancaster University, UK.

Huang, Y., Huang, Y., Xue, N., & Bigham, J. P. (2017, May). Leveraging Complementary Contributions of Different Workers for Efficient Crowdsourcing of Video Captions. In *Proceedings of the 2017 CHI Conference on Human Factors in Computing Systems*, 4617-4626.

Humphries, T., Kushalnagar, P., Mathur, G., Napoli, D. J., Padden, C., Rathmann, C., & Smith, S. R. (2012). Language Acquisition for Deaf Children: Reducing the harms of zero tolerance to the use of alternative approaches. *Harm Reduction Journal, 9*(6). Retrieved from https://harmreductionjournal.biomedcentral.com/articles/10.1186/1477-7517-9-16

Hutchins, E. (1995). Cognition in the Wild. Cambridge: The MIT press.

Hutchins, E. (1995). How a cockpit remembers its speeds. *Cognitive science, 19*(3), 265-288.

Hyland, K. (2009). *Writing in the Disciplines: Research evidence for specificity. Taiwan International ESP Journal, 1*(1), 5-22.

Ingold, T. (2002). *The perception of the environment: essays on livelihood, dwelling and skill.* London: Routledge.

Irani, L. (2015). The cultural work of microwork. *New Media & Society, 17*(5), 720-739.

Jain, S. S. (1999). The prosthetic imagination: Enabling and disabling the prosthesis trope. *Science, Technology, & Human Values, 24*(1), 31-54.

Jain, S. S. L. (2006). *Injury: The politics of product design and safety law in the United States*. New Jersey: Princeton University Press.

Jain, S. L. (2007). Living in Prognosis: Toward an elegiac politics. *Representations, 98*(1), 77-92.

Jain, S. L. (2013). *Malignant: How cancer becomes us*. Berkeley, CA: University of California Press.

Jackson Jr, J. L. (2013). *Thin Description*. Cambridge, MA: Harvard University Press

Johnson, M., & McRuer, R. (2014). Cripistemologies: Introduction. *Journal of Literary & Cultural Disability studies*, *8*(2), 127-148.

Johnston, M. (1997). Integrating models of disability: A reply to Shakespeare and Watson. *Disability & Society 12*(7), 307-310.

Kafer, A. (2013). Feminist, Queer, Crip. Bloomington, IN: Indiana University Press.

Kitchin, R. (2000). Disability, Space and Society. Sheffield, UK: The Geographical Association.

Kittay, E. F. (2011). The ethics of care, dependence, and disability. *Ratio Juris*, *24*(1), 49-58.

Kittay, E. F. (2013). *Love's labor: Essays on women, equality and dependency*. New York, NY: Routledge.

Kröger, T. (2009). Care research and disability studies: Nothing in common? *Critical Social Policy, 29*(3), 398-420.

Kushalnagar, R., Lasecki, W., & Bigham, J. (2014, January). Accessibility Evaluation of Classroom Captions. *ACM Transactions on Accessible Computing. 5*(3). Retrieved from https://dl.acm.org/citation.cfm?id=2568367.2543578

Lasecki, W., Miller, C., Sadilek, A., Abumoussa, A., Borrello, D., Kushalnagar, R., & Bigham, J. (2012, October). Real-time captioning by groups of non-experts. In *Proceedings of the 25th annual ACM symposium on User interface software and technology* (pp. 23-34). ACM.

Lather, P. (2006). Foucauldian scientificity: Rethinking the nexus of qualitative research and educational policy analysis. *International Journal of Qualitative Studies in Education, 19*(6), 783-791.

Law, J. (2007). *Making a Mess with Method*. Thousand Oaks, California: Sage. Law, E., & Ahn, L. V. (2011). Human Computation. *Synthesis Lectures on Artificial*

Intelligence and Machine Learning, 5(3), 1-121.

Livingston, J. (2005). *Debility and the Moral Imagination in Botswana*. Bloomington, IN: Indiana University Press.

Longmore, P. K. (2003). Why I burned my book and other essays on disability. Philadelphia, PA: Temple University Press.

Marcus, S., Love, H., & Best, S. (2016). Building a better description. *Representations, 135*(1), 1-21

Martin, A., Myers, N., & Viseu, A. (2015). The Politics of Care in Technoscience. *Social Studies of Science, 45*(5), 625-641.

Mauldin, L. (2016). Made to hear: Cochlear implants and raising deaf children. University of Minnesota Press.

McArthur, P. & Zavitsanos, C. (2013). Other Forms of Conviviality: The best and least of which is our daily care and the host of which is our collaborative work. *Women & Performance: A journal of feminist theory*, *23*(1), 126-132.

McRuer, R. (2006). *Crip Theory: Cultural signs of queerness and disability*. New York: New York University Press.

McRuer, R. (2010). Disability Nationalism in Crip Times. *Journal of Literary & Cultural Disability Studies*, *4*(2), 163-178.

McRuer, R. (2011). Disabling Sex: Notes for a crip theory of sexuality. *GLQ: A Journal of Lesbian and Gay Studies*, *17*(1), 107-117.McRuer, R. (2018). *Crip Times: Disability, Globalization, and Resistance*. NYU Press.

Meekosha, H., & Shuttleworth, R. (2009). What's so 'critical' about critical disability studies? *Australian Journal of Human Rights, 15*(1), 47-75.

Mialet, H. (2012). *Hawking incorporated: Stephen Hawking and the anthropology of the knowing subject.* Chicago: University of Chicago Press.

Mills, M. (2011). Do signals have politics? Inscribing abilities in cochlear implants. In *The Oxford handbook of sound studies*, T. Pinch & K. Bijsterveld (Eds.). Oxford, New York: Oxford University Press.

Mills, M. (2012). Media and Prosthesis: The Vocoder, the Artificial Larynx, and the History of Signal Processing. *Qui Parle: Critical Humanities and Social Sciences, 21*(1), 107-149.

Mingus, M. (2010, November). *Changing the framework: Disability justice*. Initially posted on the Resist website. Retrieved from https://leavingevidence.wordpress.com/2011/02/12/changing-the-framework-disability-justice/

Minich, J. A. (2016). Enabling Whom? Critical Disability Studies Now. *Lateral 5(1),* Retrieved from https://doi.org/10.25158/L5.1.9.

Misa, T. J. (Ed.). (2011). *Gender Codes: Why women are leaving computing*. Hoboken, NJ: John Wiley & Sons.

Mitchell, D., & Snyder, S. (2010). Disability as multitude: Re-working non-productive labor power. *Journal of Literary & Cultural Disability Studies, 4*(2), 179-194.

Mol, A. (2002). *The Body Multiple: Ontology in Medical Practice*. Durham: Duke University Press.

Mol, A. (2008). The Logic of Care: Health and the problem of patient choice. Abingdon, Oxon: Routledge.

Mol, A., Moser, I., and Pols, J. (2015). *Care in Practice*: *On Tinkering in Clinics, Homes and Farms*, *8*. Bielefeld: transcript Ferlag, pp. 7-27.

Morton, K. (2014). Gainful Employment: Historical Examples from Akron. In H. D. L., & Murray, J. J. (Eds.), *Deaf gain: Raising the stakes for human diversity*. Minneapolis: University of Minnesota Press.

Murphy, M. (2006). *Sick Building Syndrome and the Problem of Uncertainly: Environmental Politics, Technoscience, and Women Workers*. Durham and London: Duke University Press.

Naples, N. A. (2013). Feminism and Method: Ethnography, discourse analysis, and activist research. New York, NY and London: Routledge.

Neves, J. (2007). Of Pride and Prejudice: The divide between subtitling and sign language interpreting on television. T*he Sign Language Translator & Interpreter (SLTI). 1*(2), 251-274

Oliver, M. (1992). Changing the social relations of research production? *Disability, Handicap & Society*, *7*(2), 101-114.

Oliver, M. (1996). A Sociology of Disability or a Disablist Sociology. In *Disability and Society: Emerging issues and insights*, L. Barton (Ed.). London: Longman.

Oliver, M. J. (1999). The disability movement and the professions. *British Journal of Therapy and Rehabilitation 6*(8), 377-379.

Oliver, M. (2004). If I had a hammer: The social model in action. *Disabling barriers–Enabling environments, 2*, 7-12.

Ott, K., Serlin, D., & Mihm, S (2002). *Artificial parts, practical lives: modern histories of prosthetics.* New York: NYU Press.

Ott, K. (2002). The sum of its parts: an introduction to modern histories of prosthetics. In *Artificial parts, practical lives: Modern histories of prosthetics*, K. Ott, D. Serlin, & S. Mihm, S. (Eds), (pp.1-42).

Padden, C. A., & Humphries, T. (1990). *Deaf in America*. Cambridge, MA and London: Harvard University Press.

Padden, C., & Humphries, T. (2006). *Inside Deaf Culture*. Cambridge, MA: Harvard University Press.

Paterson, K., & Hughes, B. (2006). The Social Model of Disability and the Disappearing Body: Towards a sociology of impairment. *Disability & Society, 12*(3), 325 -340.

Peterson, D. (2011). Neoliberal Homophobic Discourse: Heteronormative Human Capital and the Exclusion of Queer Citizens, *Journal of Homosexuality, 58* (6-7), 742-757.

Petrick, E. R. (2015). *Making computers accessible: disability rights and digital technology.* Baltimore, MD: The Johns Hopkins University Press. Pittman, A. (2013). Dis-Assembly Lines: gestures, situations, and surveillances. *Women & Performance: A journal of feminist theory*, 23(2), 178-192.

Power, D., & Leigh, G. (2004). Educating Deaf Students: Global perspectives. Washington, DC: Gallaudet University Press.

Price, M. (2015). The Bodymind Problem and the Possibilities of Pain. *Hypatia, 30*(1), 268-284.

Priestley, M. (1998). Constructions and creations: idealism, materialism and disability theory. *Disability & Society, 13*(1), 75-94.

Puar, J. K. (2009). Prognosis time: towards a geopolitics of affect, debility and capacity. *Women & Performance: a journal of feminist theory*, *19*(2), 161-172.

Puar, J. K. (2017). *The Right to Maim: Debility, Capacity, Disability*. Durham: Duke University Press.

Pullin, G., & Hennig, S. (2015). 17 ways to say yes: Toward nuanced tone of voice in AAC and speech technology. *Augmentative and Alternative Communication, 31*(2), 170-180.

Ramazanoglu, C., & Holland, J. (2002). *Feminist Methodology: Challenges and choices*. London, Thousand Oaks, New Dehli: Sage Publications Ltd.

Reindal, S. M. (1999). Independence, Dependence, Interdependence: Some Reflections on the Subject and Personal Autonomy. *Disability & Society*, *14(3),* 353-367.

Reinharz, S., & Davidman, L. (1992). *Feminist Methods in Social Research*. Oxford: Oxford University Press.

Rioux, M. H. (1996). *Disability: The place of judgment in a world of fact.* Journal of Intellectual Disability Research, 41*(2). 102-111.*

Rose, G. (2016). *Visual Methodologies: An introduction to researching with visual materials.* Thousand Oaks, CA: Sage.

Ross, A., & Taylor, S. (2017, May). Disabled Workers and the Unattainable Promise of Information Technology. *New Labor Forum, 26*(2), 84-90.

Rubery, J. (2015). Change at Work: Feminisation, flexibilisation, fragmentation and financialisation. *Employee Relations, 37*(6), 633-644.

Russell, M. (2002). What disability civil rights cannot do: employment and political economy. Disability & Society, 17(2), 117-135.

Sabatello, M., & Schulze, M. (2013). *Human Rights and Disability Advocacy*. Philadelphia, Pennsylvania: University of Pennsylvania Press.

Schweik, S. M. (2009). *The Ugly Laws: Disability in public*. New York: NYU Press.

Sedgwick, E. K., & Frank, A. (2003). Touching Feeling: Affect, pedagogy, performativity. Durham: Duke University Press.

Serlin, D. H. (2003). Crippling Masculinity: Queerness and disability in US military culture, 1800-1945. *GLQ: A Journal of Lesbian and Gay Studies, 9*(1), 149-179.

Serlin, D. (2004). *Replaceable You: Engineering the body in postwar America*. Chicago: University of Chicago Press.

Serlin, D. (2006). The Other Arms Race. In *The disability studies reader*, L.J. Davis (Ed.). New York and London: Routledge..

Shakespeare, T., & Watson, N. (1997). Defending the social model. *Disability & Society, 12*(2), 293-300.

Shakespeare, T. (1997). Researching Disabled Sexuality. In *Doing Disability Research*, C. Barnes & G. Mercer, (pp. 177-189). Leeds, UK: The Disability Press.

Shakespeare, T. (1999). 'Losing the plot'? Medical and activist discourses of contemporary genetics and disability. *Sociology of Health & Illness, 21*(5), 669-688.

Shakespeare, T., & Watson, N. (2001). The social model of disability: an outdated ideology? In *Exploring theories and expanding methodologies: Where we are and where we need to go, S. N. Barnartt & B. M. Altman (Eds.),* (pp. 9-28). Bingley, England: Emerald Group Publishing Limited.

Shakespeare, T. (2006). The Social Model of Disability. *The disability studies reader, 2*, 197-204.

Shakespeare, T. (2006). *Disability Rights and Wrongs*. Abingdon, Oxon and New York, NY: Routledge.

Shakespeare, T. (2013). *Disability rights and wrongs revisited*. London: Abingdon, Oxon: Routledge.

Shapin, S. (1989). The Invisible Technician. *American Scientist, 77*(6), 554-563.

Shogren, K. A., Wehmeyer, M. L., Buchanan, C. L., & Lopez, S. J. (2006). The application of positive psychology and self-determination to research in intellectual disability: A content analysis of 30 years of literature. *Research and Practice for Persons with Severe Disabilities, 31*(4), 338-345.

Shildrick, M. (2013). Critical disability studies: Rethinking the conventions for the age of postmodernity. In *Routledge Handbook of Disability Studies, N. Watson, A. Roulstone, & C. Thomas (Eds.),* (pp. 44-55). London, UK: Routledge.

Siebers, T. (2008). *Disability Theory*. Ann Arbor, Michgan: University of Michigan Press.

Simplican, S. C. (2015). *Capacity Contract*. Minneapolis, MN: University of Minnesota Press.

Snyder, J. (2014). *The Visual Made Verbal: A comprehensive training manual and guide to the history and applications of audio description*. American Council of the Blind, Incorporated.

Stanley, A. (2002). A struggle to keep up for TV caption writers" New York Times, 22 Nov. 2001); "United we stand," JCR (Jan. 2002), 52-56; "Closed captioning

company, VITAC, captions September 11 anniversary coverage for millions of deaf and hard of hearing Americans," PR Newswire (28 Aug. 2002). Quoted from Downey.

Star, S. L., & Griesemer, J. R. (1989). Institutional Ecology, Translations' and Boundary Objects: Amateurs and professionals in Berkeley's Museum of Vertebrate Zoology, 1907-39. *Social studies of science* 19(3), 387-420.

Stone, D. A. (1986). *The Disabled State*. Philadelphia: Pennsylvania: Temple University Press.

Stone, E. and Priestley, M. (1996) Parasites, pawns and partners: disability research and the role of non-disabled researchers. *British Journal of Sociology, 47*(4). 699-716.

Strathern, M. (1988). *The gender of the gift: problems with women and problems with society in Melanesia (Vol. 6).* Berkeley, CA: University of California Press.

Suchman, L. (2011). Subject objects. *Feminist Theory, 12*(2), 119-145.

Taylor, F. W. (2004). *Scientific Management*. New York and London: Routledge.

Taylor, F. W. (2005). *The Principles of Scientific Management*. New York and London: Harper and Brothers Publishers, 1914.

Thomas, C. (2004). How is disability understood? An examination of sociological approaches. *Disability & Society, 19*(6), 569-583.

Thompson, C. (2005). *Making Parents: The ontological choreography of reproductive technologies*. Cambridge: MIT press.

Titchkosky, T. (2011). *The Question of Access: Disability, Space, Meaning*. Toronto: University of Toronto Press.

Titchkosky, T. (2011). *The Question of Access: Disability, space, meaning*. Toronto: University of Toronto Press.

Tsing, A. (2013). More-than-human sociality: a call for critical description. In *Anthropology and Nature*, K. Hastrup (Ed.), (pp. 27-42). New York: Routledge.

Tsing, A. (2015). *The Mushroom at the End of the World: On the Possibility of Life in Capitalist Ruins*. Princeton: Princeton University Press.

Venuti, L. (2008). *Translation, Interpretation, Canon Formation*. In Translation and the Classic: Identity as Change in the History of Culture, A. Lianeri & V. Zajko (Eds.), (pp. 27-51). Oxford: Oxford University Press.

Wajcman, J. (1991). *Feminism Confronts Technology*. University Park, Pennsylvania: Penn State Press.

Weber, M., Baehr, P., & Wells, G. C. (2002). *The Protestant ethic and the "spirit" of capitalism and other writings*. New York: Penguin Books.

Weeks, K. (2011). *The Problem with Work: Feminism, Marxism, Antiwork Politics, and Postwork Imaginaries*. Durham: Duke University Press.

Wendell, S. (1996). *The Rejected Body: Feminist Philosophical Reflections on Disability*. London: Psychology Press.

Wenger, E. (1998). *Communities of Practice: Learning, Meaning, and Identity*. Cambridge: Cambridge University Press.

Whalen, J., Whalen, M., & Henderson, K. (2002). Improvisational choreography in Teleservice Work. *The British journal of sociology* 53(2), 239-258.

Winance, M. (2006). Pain, disability and rehabilitation practices. A phenomenological perspective. *Disability and Rehabilitation, 28*(18), 1109-1118.

Winance, M. (2006). Trying out the wheelchair: the mutual shaping of people and devices through adjustment. *Science, Technology, & Human Values, 31*(1), 52-72.

Wolfe, C. (2013). *Learning from Temple Grandin, or, animal studies, disability studies, and who comes after the subject.* Lewisburg: Bucknell University Press. pp. 91-106.

Wooten, V. (2012). Waiting and watching in silence: Closed captioning requirements for online streaming under National Association for the Deaf v Netflix, Inc. and the CVAA. *North Carolina Journal of Law & Technology, 14*, 135-166.

Zarb, G. (1992). On the Road to Damascus: First steps towards changing the relations of disability research production. *Disability, Handicap & Society, 7*(2), 125-138.

Zarb, G. (1997). Researching disabling barriers. In *Doing Disability Research*, C. Barnes & G. Mercer (Eds.), 49-66.

Zarb G. (2003) Running out of steam? The impact of research on disability policy and the disability rights agenda keynote paper presented at Disability Studies: Theory, Policy and Practice Conference, Lancaster, UK.

Zdenek, S. (2015). *Reading Sounds: Closed-captioned media and popular culture*. Chicago: The University of Chicago Press.