Locating the "When" of Access Through Genre and Infrastructure

Dana Comi

Submitted to the graduate degree program in English and the Graduate Faculty of the University of Kansas in partial fulfillment of the requirements for the degree of Doctor of Philosophy.

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Locating the "When" of Access Through Genre and Infrastructure

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Date Approved:

June 4th, 2021

Abstract

Technological innovation within federal welfare programs is often marketed as a way to resolve issues of access. *Locating the "When" of Access Through Genre and Infrastructure* traces technological innovation within the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) program's benefit redemption in order to locate when access happens (and doesn't) for program participants. WIC is a federal program that provides grants to states to resolve food insecurity, nutritional risk, and promote overall health and well-being for eligible program participants. One primary function of the WIC program is providing supplemental foods to participants. Over the last decade, the WIC program has undergone technological change to transition from a paper-based to an Electronic Benefit Transfer (EBT) benefit redemption method, changing how program participants purchase supplemental foods in order to "streamline" the program and address issues of access. This technological change includes changes to WIC's information infrastructure— the ways information is collected, stored, and shared across the large organization and various stakeholders—including grocery store vendors, technology partners, banks, and private contractors. Information infrastructures are made up of many genres that help enable social action.

Through a qualitative study consisting of infrastructural inversion, resistant reading, and interviews, I examine how an information infrastructure genre, the Approved Product List (APL), emerges from this technological innovation and functions for (and against) program participants. I analyze the shift from paper to EBT benefit redemption as an infrastructural change that reveals key stakeholders, as well as the pragmatic and ideological functions of the APL. I also analyze the emergence and persistence of the COVID-19 pandemic as a crisis that further reveals the values built into the design of the EBT system. I use this analysis as a way to

contextualize interviews with program participants to understand how they navigate “the system” and create “when” moments of access for themselves. Overall, this study reveals that program participants must input additional time and labor to successfully redeem their benefits within a hyper-standardized, high-stakes environment in which interactions with cashiers during checkout are often negative and embarrassing. Additionally, this study provides implications for the additional burdens women of color and disabled people face because of the mediation of the APL and its role in increasing the visibility of vulnerability of people who are already more highly surveilled and policed. Ultimately, this project encourages writing studies to pay attention to the infrastructural genres that may go unnoticed but have significant influence on shaping access for people in their everyday lives.

Acknowledgments

I want to begin by thanking my dissertation committee, Drs. Pritha Prasad, Peter Grund, Anis Bawarshi, and Jay Childers, for your insightful feedback throughout every stage of this project. I've grown as a researcher and writer because of your questions, your encouragement, and your advice. All the thanks in the world to Dr. Mary Jo Reiff, my dissertation chair and mentor, for your steadfast support and belief in my work. You were always available to talk through ideas, read drafts, and envision next steps forward (even during the chaos of the pandemic!) and rebuild the study from the ground up after "Plan A" fell through. In addition, thank you to Dr. Amy Devitt for talking with me about this project at its earliest stage and being part of my dissertation "team."

Thank you to the WIC program administrators, staff, and vendor representatives for taking time to talk with me. I am grateful for your knowledge and insight into how everything works, and was honored to learn about everything you do on a daily basis to help families get the most they can out of the program. Thank you to the WIC participants interviewed for this study. Thank you for finding time, usually at the end of a busy workday, to share your experiences with me. Your knowledge and navigation of "the system" fundamentally defines this project and illuminates what change is possible. It was a gift to get to know each of your families this past year.

Thank you to my friends and family, who also made this work possible. Thank you to my writing group, especially Dr. Alisa Russell, Dr. Leighann Thone, Dr. Casey Keel, Dr. Sarah Polo, Christopher Peace, and Charlesia McKinney, for providing feedback on seminar papers, articles, and chapter drafts over the past years. Thanks to the Brunch Buddies for lots of coffee, conversation, and McLain's French fries. Thanks to my Westwood family for noodle night.

Thanks to my Haskell family for good conversations about writing and teaching, especially Dr. Smokey McKinney and Dr. Joshua Falleaf. Thanks to my Whitworth family, including Drs. Thom Caraway, Doug Sugano, Laura Bloxham, Laurie Lamon, Fred Johnson, Casey Andrews, and Jess Clements—I wouldn't be in graduate school without your teaching and guidance. A special thanks to Dr. John Pell for your rhetoric and composition classes, research opportunities, and the idea that I could teach and study writing for a living.

Thank you to my family, including my parents, grandparents, in-laws, brother, and siblings-in-law for listening to me talk about genre for the past five years. I'm thankful for your support and excitement for each milestone. To Matt and Franklin—there really aren't words. You've both been through every stage of this project with me. Thank you for your love.

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Introduction

The most profound technologies are those that disappear [and] weave themselves into the fabric of everyday life until they are indistinguishable from it.

—Mark Weiser, "The Computer for the 21st Century"

The historical material record shows that people have not been mere beneficiaries of infrastructures but have actually served as infrastructures themselves. If, for instance, the public water supply does not extend into a particular neighborhood, residents of that neighborhood will often fill up their tanks and buckets within the service zone and tote their water that 'last mile' home. People, in other words, do the work of absent pumps and pipes.

— Shannon Mattern, "Deep Time of Media Infrastructure"

Every time Brianna goes grocery shopping, it's a lot of work. She describes it as "not just something that I do … it's an event." Brianna is a mom of eight children and a forklift driver, working ten-hour days with an hour-long commute. She lives in Kentucky with her husband, who also drives forklifts, and goes to the only grocery store in town to do her shopping.

When it's her turn at the cash register, she gets out four cards to pay. Brianna says that normally the cashier and other people in line "gawk" at her and sometimes even "roll their eyes." It's Brianna's goal to "get out of there in as little time as possible," but she has to wait for four separate transactions to be scanned and processed by the cashier, which often holds up the line. Often, people in line voice their frustration and leave to find a faster checkout lane. It is a stressful and embarrassing event, and that's if everything goes right.

Grocery shopping is something many people do without much thought. For moms and caretakers enrolled in the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC), like Brianna, however, grocery shopping is a more involved and challenging process. WIC participants are assigned particular food packages based on their nutritional needs and can only purchase approved food items that align with their assigned food package. Unlike SNAP (formerly known as food stamps), where participants can purchase a wide variety of food items using their assigned cash amount, WIC participants must find the right brand, size, and type of specific food items. WIC grocery shopping, then, can feel like a scavenger hunt to find the correct items.

Checkout often is the site where WIC participants experience the most setbacks when attempting to redeem their benefits. Brianna is a foster mom to three children, each of whom is classified as an individual family unit in WIC's guidelines. Therefore, Brianna has to use four separate eWIC cards to process four separate transactions to redeem each child's food items in addition to her own. Brianna explains how this typically goes:

> Cashiers tend to get crabby when you start pulling out a second card, then a third, and by the time you're pulling out the fourth they're like, oh man. And it was absolutely necessary to use all the cards at one time in one shopping trip because of my work schedule. Sometimes, seldomly, cashiers understand. But nine out of ten times they get upset. And I feel bad, I know they're ready to move on. There's a line behind me. God forbid there's a line behind me and I start pulling those cards out and sorting out all of my items. The other customers are huffing and puffing, getting exasperated, and then I look like the Welfare Queen and I'm like, you don't even understand.

> And then, stuff doesn't go through right, and I have to just pay for it or leave it. It just depends how bad I need it.

For Brianna, there's no simple way to redeem her WIC benefits. She follows the rules, diligently selecting and sorting her items, but these practices are time-intensive and require a level of focus difficult to maintain, particularly when shopping with kids. These practices also showcase to the cashiers and other customers that she's on WIC. When everything goes smoothly, it's not a great experience.

When items don't "go through" as WIC-eligible and an error message appears on the cash register, however, the experience becomes overtly negative. Brianna often pays for these items out of pocket or leaves them at the register in order to avoid conflict and becoming even more visibly "on welfare." These issues, in the context of an already complicated and challenging grocery shopping experience, are burdensome. Brianna must weigh "how bad" she needs items because she cannot pay for them with her WIC benefits. As a white, able-bodied woman, Brianna may otherwise not experience stigma during grocery shopping, but her participation in WIC necessitates a process that invites attention, and often, derision from staff and fellow customers.

Brianna's grocery shopping experiences raises a simple question: *Why?* Why is this so difficult? This question has a complicated answer (see: the next 160 pages). To understand why Brianna's experiences redeeming (or failing to redeem) her WIC benefits are so difficult, it's necessary to understand why, and how, she is put in this situation again and again. Brianna needs four separate eWIC cards to use WIC benefits for herself and her foster children, must organize her food items into four separate transactions to use those eWIC cards, cannot find out if her items will be accepted as WIC-eligible until they are scanned at the register, and cannot avoid

being visibly "on welfare" because of these processes. Identifying these standardized processes and the guidelines that dictate them at face-value is relatively straightforward; they are well-advertised in WIC's public-facing genres, on their website, including program guidelines and Frequently Asked Questions ("WIC"). Looking at the genres where these processes and guidelines are outlined can help describe and explore issues of access within the program, but doesn't get to the root of the problem(s). In other words, reading and analyzing the rules only helps to determine that Brianna indeed is following the rules, not why these rules create such unsustainable, marginalizing, and stigmatizing conditions, and how these rules came to be in the first place. To understand why and how Brianna's grocery shopping experience is the way it is, it is necessary to also look at genres that operate behind the scenes.

Project Aim and Scope

This dissertation posits that behind-the-scenes genres are key to studying issues of access. Studying behind-the-scenes genres benefits from an infrastructural approach, specifically, locating and analyzing genres that are part of information infrastructure—the people, processes, procedures, tools, facilities, and technology which supports the creation, use, transport, storage, and destruction of information (Pironti 2006). Analyzing the information infrastructure genres of a large organization like WIC provides insight into these information practices and provides necessary contextualization of the technical guidelines that underlie the key social actions (like grocery shopping) of WIC participants like Brianna. In order to understand these information practices, I draw on Rhetorical Genre Studies to analyze a key genre that is part of WIC's information infrastructure, the Approved Product List (APL). As my analysis reveals, the APL is an information infrastructure genre that most influences WIC participants' grocery shopping

experiences and is therefore my central focus for this project. In order to understand how the APL functions as part of WIC's information infrastructure, I introduce an infrastructural perspective to this genre analysis, engaging with literature from information science and critical infrastructure studies, an interdisciplinary research area that draws from new media studies, cultural studies, and anthropology. Specifically, I import the focus on infrastructure as relational and temporally bound to identify moments when the APL creates access for WIC participants during grocery shopping and checkout and when it creates problems.

Through a qualitative study, I trace the pragmatic and ideological functions of the APL and situate those functions within a historical trajectory of neoliberal welfare reform that increasingly burdens people enrolled in government assistance to create these "when" moments of access to successfully redeem their WIC benefits, requiring significant time, labor, inconvenience, and sometimes, risk. From these findings, I highlight how the APL creates a hyper-standardized environment for benefit redemption, creating a high-stakes exchange between cashiers and participants at the cash register that makes visible bodies that are already more highly surveilled and policed, specifically, disabled people and people of color. While these findings are preliminary hypotheses that would need to be confirmed and further explored through an expanded qualitative inquiry, this study suggests that the APL, as an information infrastructure genre, is a site that upholds and perpetuates what might be otherwise alluded to as "systemic" sexism, racism, and ableism. This study contributes to current conversations within writing studies about locating issues of access and making interventions within writing systems that marginalize and harm. This study also contributes to conversations about writing, technology, and access. Ultimately, I argue that writing studies should turn attention to

underlying information infrastructure genres that, while often invisible during direct observation, influence social action and exacerbate inequities from behind the scenes.

Understanding how information infrastructure genres are designed and function works, as Grabill states, to "drill deep into … the infrastructure of inequality" (455). While current work in the connections between writing and access within writing studies has tended to focus on direct engagement with technologies, primarily computers, this project looks at a technologically mediated environment, the grocery store, and both the present technologies (e.g. the cash register), an underlying information infrastructure genre (e.g. the APL), and the key stakeholder relationships that mediate WIC shopping and benefit redemption during checkout in order to locate how access is affected by environments influenced by underlying information infrastructures and their technological arrangements.

Infrastructure is best studied when it breaks or changes (Star 1999), and this study embraces the infrastructural inversions (moments where infrastructure reveals itself) that resulted both from WIC's technological shift in benefit redemption systems, from paper to Electronic Benefit Transfer, and the emergence and persistence of the novel coronavirus pandemic. Both the technological shift and the pandemic shifted (and jolted) the WIC program out of routinized, "normal" operations, making it more possible to locate key stakeholders, standardized processes, and the functions of the APL. This project took place during chaotic, uncertain times, but the findings and conclusions of this research have implications for times of relative stability and normalcy. The technological shift and pandemic helped to identify problems that have always been problems, to an extent, that have simply become more present during this time of unrest.

In the following section, I explain how this project began, and how I approached studying access within the WIC program. I state my main research questions for this project and then provide chapter overviews for the chapters that follow this Introduction.

Rationale and Research Questions

It's hard to know where to start when talking about access and technology. Merriam-Webster defines access as 1) "permission, liberty, or ability to enter, approach, or pass to and from a place or to approach or communicate with a person or thing; 2) freedom of ability to obtain or make use of something; or 3) a way or means of entering or approaching" ("Access"). That even the first definition is so expansive (permission/liberty/ability to approach/pass to and from/communicate) highlights some of the challenges of locating and describing access. Is access given by technology or built "into" technology? The ability to move or the route itself?

In this dissertation, I argue that these "what" questions, reframed to "when" questions, help acknowledge and embrace these complexities. Access is ultimately relational, not something that can be located outside of the specific time and place someone interacts with, or is affected by, technology. This project showcases this deeply relational nature of access. Beginning with a pilot study in 2019, I began a qualitative study of the Special Supplemental Nutrition Program for Women, Infants, and Children, otherwise known as WIC. The WIC program serves pregnant and postpartum women, children, and infants who are at nutritional risk through healthcare referrals, nutrition education, breastfeeding support, and supplemental foods. WIC serves 53% of all infants in the United States ("About WIC"). I chose this research site, in part, because it was an ideal place to study access. WIC was undergoing major technological changes to "modernize and streamline" the program in order to respond to increasing participant

attrition rates and lowered rates of participation overall despite eligibility ("Making WIC Work Better").

I initially located resource genres, like brochures, Frequently Asked Questions website pages, and program guideline booklets because I wanted to understand how prospective and current WIC participants navigated the program, especially since these resource genres were being collected and digitized in the rollout of a mobile phone application, WICShopper. WICShopper was marketed as a one-stop-shop, providing "tools that will make WIC easy for [participants] to use" ("Download WICShopper"). I was curious to see if WICShopper did in fact make WIC easy to use. As I began to analyze the resource genres, I started to realize I didn't understand why WIC was the way it was. For instance, on WICShopper, I scrolled through the Recipes tab, meant to provide easy recipes for WIC participants to cook using the foods they purchased using their WIC benefits. However, each recipe had at least one ingredient (often far more) that could not be purchased using WIC benefits (e.g. spices, herbs, condiments). Why? As I dug deeper into WIC guidelines, including how food item eligibility is determined and how that translates to the resource genres, I ended up at the genres of WIC's information infrastructure. And that's where this project really began.

This project focuses on one information infrastructure genre, the Approved Product List (APL). As described in far more detail in Chapters 2 and 3, the APL is a genre that emerges amidst a technological shift of the WIC program's benefit redemption system, and is how people redeem their WIC benefits at the grocery store to purchase eligible food items. I chose to study the APL, in part, because it revealed itself as the most influential genre within WIC's information infrastructure that influenced the grocery shopping experiences of WIC participants. I ask the following research questions in order to locate and understand "when" access happens:

1. How does the APL function infrastructurally in the WIC program?
2. How do WIC participants navigate their grocery shopping experiences mediated by the APL?
3. How do genres, infrastructures, and access relate?

An important backdrop for this study is an understanding of how technological innovations affect access. Technological innovations within government assistance programs like WIC are often touted as a means of establishing access for program participants and resolving inequity. In the past decade, there's been a push to implement new technologies in WIC to improve service and save money. David Paige argues:

> WIC and health care in general has been slow to embrace information technology and the advanced methods of communication … WIC needs to reposition itself to be tech savvy. The result will be a reduction in client burden, staff time, and improved education. Streamlining will result in WIC program efficiency and cost saving can be substantial. The innovative approaches coupled with the use of electronic benefit transfer smart cards will be a critical part of the program. A smart card will store data, inform decisions, guide care, and serve to target as well as personalize nutrition education … smart cards will also contain a wealth of data that can be used administratively as well as to inform policy decisions. The possibilities are as endless as our imagination and the will to transform the program to maximize its impact while reaping efficiencies and economies that are responsive to budgetary considerations. The future of WIC and its continued support and success is tied to the emerging technology." ("WIC: Looking Back, Envisioning the Future" 3)

This characterization of technological innovation as a cure-all for the pragmatic and financial challenges of the program's existing information infrastructure is an important backdrop for this study because it asserts a belief in a one-to-one relationship between technology and access. Within this logic, the transition to a more "tech savvy" benefit redemption method like EBT (which uses smart cards, called eWIC cards) will improve participant experience, streamline administrative functions, and save money. As this project demonstrates, this is not the case. This study contributes to current conversations within writing studies about issues of access through understanding how an information infrastructure genre, the APL, functions and doesn't function for WIC participants. This study also contributes to Rhetorical Genre Studies, and specifically, critical genre studies, by arguing that analyzing information infrastructure genres is a way to leverage genre theory to locate issues of access as they relate to gender, race, and disability.

Chapter Overviews

In Chapter One, I bring an infrastructural approach to Rhetorical Genre Studies (RGS) to contribute to conversations about access within Writing Studies. I first review the literature of Rhetorical Genre Studies and existing scholarship that both directly and indirectly concern access. I then outline the concept of infrastructure from information science and explain how this concept can be useful to form an infrastructural perspective for studying genre inaction and issues of access, with particular focus on genres within information infrastructures. This chapter establishes a theoretical foundation for the qualitative study of WIC.

In Chapter Two, I explain how this project came to focus on the APL, as well as the rationale for the triangulation of methods (resistant reading, infrastructural inversion, and interviews) for analyzing the APL's role in shaping access within the WIC program. Engaging

infrastructural inversion as a means of resistant reading answers my first research question: How does the APL function infrastructurally within the WIC program? Bringing these findings into conversation with experiences of WIC participants gathered from interviews answers my second research question: How do WIC participants navigate their grocery shopping experiences mediated by the APL? Taking the findings of these two questions together helps me answer my third research question: What are the relationships between genres, infrastructures, and access?

In Chapter Three, I outline the findings of this qualitative study. First, I map the infrastructural inversion of the APL as a means of resistant reading and outline key stakeholders, its pragmatic and ideological functions, and describe how the APL functions as a mediating touchstone, an interoperability "link" between technological systems, and a site of mediation that creates a consequential relationship between the cash register, cashier, and WIC participant during checkout. I bring this infrastructural inversion into conversation with interview data with WIC administrators and staff, vendor representatives, and program participants to contextualize and summarize the rhetorical strategies participants engage during grocery shopping and checkout. As I review the rhetorical strategies participants employ, I locate how these strategies are necessary in order to create "when" moments of access, and highlight how the need for these strategies requires participants to put additional time and labor into the work they're already doing to successfully redeem their WIC benefits.

In Chapter Four, I outline the answers to the research questions pursued. In particular, I discuss how the rhetorical strategies WIC participants use to create "when" moments of access also create heightened visibility and vulnerability at the cash register that further marginalizes bodies that are already more highly surveilled and visible in public spaces. I argue that tracing the social action and inaction enabled by the APL highlights the sexist, racist, and ableist

consequences of the MIS-EBT information infrastructure and what results from the hyper-standardization of food item eligibility created and perpetuated by the APL. Then, I suggest implications for Rhetorical Genre Studies, as well as the broader conversation within writing studies about the relationship between writing, technology, and access. Finally, I describe areas for further research to investigate the relationships between genres, infrastructures, and access.

Chapter One: Genre, Infrastructure, Access

This project asserts that information infrastructure genres are key to studying issues of access. Introducing this infrastructural approach clarifies the relationships between writing, infrastructure, and access. This chapter brings an infrastructural approach to Rhetorical Genre Studies (RGS) to contribute to conversations about access within Writing Studies. I review key scholarship within Rhetorical Genre Studies that both directly and indirectly concern access. I then outline the concept of infrastructure from information science and explain how this concept can be useful to form an infrastructural perspective for studying issues of access, with particular focus on genres within information infrastructures. This chapter establishes a theoretical foundation for the chapters that follow, which outline the methods, findings, and analysis of a qualitative study of the Special Supplemental Nutrition Program (WIC) and a key genre, the APL, that is part of the program's information infrastructure. Specifically, this chapter draws connections between genre, infrastructure, and access, providing a foundation for my qualitative study.

Rhetorical Genre Studies (RGS): Genres as social, rhetorical, and ideological

Rhetorical Genre Studies is a dynamic body of theoretical and pedagogical approaches to studying and teaching writing. While Rhetorical Genre Studies is a relatively new body of scholarship, emerging primarily in the last thirty years, it responds to an extensive history of literary, linguistic, rhetorical, and sociological traditions of studying and theorizing genre. Rhetorical Genre Studies includes a wide range of research interests within and beyond the university and the writing classroom, although many researchers are invested in the pedagogical applications of genre research to teaching undergraduate and graduate-level composition (for an

overview, see *Landmark Studies on Rhetorical Genre Studies*). This section outlines Rhetorical Genre Studies' conceptualization of genre as social, rhetorical, and ideological action and highlights the need for ways to study issues of access. I review the foundational literature of Rhetorical Genre Studies with attention to the ways the field has studied genres within organizational settings across academic, workplace, and public contexts. I focus especially on issues of access and how genres leverage or limit social action. This section provides a theoretical foundation to which I bring an infrastructural perspective to study issues of access within the WIC program.

Rhetorical Genre Studies draws heavily from rhetorical and sociological traditions of genre, situating genres as "sociological concepts mediating textual and social ways of knowing, being, and interacting in particular contexts," which can be studied as sites of rhetorical, social action (Reiff and Bawarshi 59). Such a conceptualization of genre extends from Carolyn Miller's 1984 article "Genre as Social Action," which works to provide a theorization of genre that accounts for both style and form, interpretation and action, and "private intention and social exigence" (163). Miller's foundational definition of genre as social action has been taken up by genre researchers to study genres within academic, workplace, public, and digital contexts.

Within these contexts, a significant portion of contemporary genre research focuses on the writing that supports and enables the work done within institutional settings—within corporate offices, court rooms, and classrooms (Devitt, Bawarshi, and Reiff 2003; Palmquist 2005; Smart 2006). Within these institutions, among others, genre research reveals how genres create relationships and hierarchies, networks of (and imbalances of) power, and routinized practices that become commonsense and functional to the people that enact them.

Genre research in academic contexts emphasizes the social nature of genre via its focus on the ways that writers navigate unfamiliar writing situations as they enter into a new academic discipline or transition from high school to first-year composition. This research centers around acculturation and the new mindsets, skills, and abilities writers must have or acquire in order to become "part" of the community. Berkenkotter and Huckin's 1995 case study of "Nate," an English graduate student, is a touchstone example of the difficult transition writers experience as they enter into new contexts. Although Nate eventually takes on the genre conventions of the discipline, his writing showcases the tensions of transition; additionally, the critical feedback he receives from his professors establishes his role as an outsider who has not yet assimilated. In their cross-institutional study of first-year composition students, Reiff and Bawarshi find that some students enter into new contexts and successfully adapt their incoming genre knowledge ("boundary crossers"), while other students struggle to effectively repurpose their genre knowledge ("boundary guarders") ("Tracing Discursive Resources"). Reiff and Bawarshi's study of boundary crossing and guarding highlights the often-challenging transition students experience as they work to compose effectively within first-year composition. As Christine Tardy's research on genre innovation (2016) demonstrates, there is always room for genres to evolve, expand, and change, but novices are typically subject to the genred expectations and conventions of established participants within a given community.

Genre research in workplace settings showcases the rhetorical nature of genre through its focus on the ways even the most mundane of texts organize and direct action. Orlikowski and Yates' research on the genre repertoires found within the email correspondence of a community's multiyear, interorganizational project suggests that genre, as a communicative practice and organizing process, is central to the group's work: establishing and maintaining

particular roles while streamlining and normalizing actions within the organization ("Genre Repertoires"). Smart, in his 2003 study of the Bank of Canada's communicative practices during a transitional period found that the organization's genre sets performed three key functions: 1) coordinating the work of a large body of people in a variety of professional roles; 2) creating and distributing the public-facing persona and position of the Bank; and 3) existing as a discursive site where organizational learning took place. Smart finds that genre sets both reflect and contribute to the process of change within a given organization. Orlikowski and Yates along with Smart's research demonstrate the central role and influence of genre within professional organizations; rather than fixed categories of kinds of information the companies produce, workers accomplish their tasks through and with genre, and individual and collective identity are shaped through these generic interactions. Similarly, Devitt's study of the professional community of tax accountants reveals the intertextual and textual nature of their work, highlighting the centrality of genres to their everyday work ("Intertextuality in tax accounting").

Genre research in public contexts, an emergent strain within contemporary genre research, recognizes the challenges of doing research in contexts that are less institutionally bound, or even counter institutional. In their introduction to *Genre and the Performance of Publics*, an edited collection of public genre research, Reiff and Bawarshi note that public genres have generally received less attention by genre researchers, perhaps in part because these "networks of genres are less predictable or hierarchal" and "genre uptakes are more diffuse and emergent" (4). For example, Risa Applegarth's analysis of interwar vocational guides reveals the "public anxiety surrounding the intrusion of women's bodies into professional spaces during the revolution of white-collar work that took places in the 1920s and 1930s" (117). These vocational guides, published and circulated primarily by women, were not directly sponsored or directed by

professional organizations, but reflect public dispositions towards women entering the workforce.

With the emergence of an increasingly technologically mediated world, there has also been an emerging interest in digital genres within Rhetorical Genre Studies. For example, Kathryn Grafton and Elizabeth Maurer's analysis of weblogs shows how bloggers construct mediated selves within online publics, demonstrating "how blogs allow for a great deal of flexibility and innovation as rhetors act on an exigence of self cultivation and validation … through posts of different genres" (59). Carolyn Miller, in *Emerging Genres in New Media Environments*, suggests that the difficulty in making distinctions between technology, media, and sociocultural forces, although challenging, creates an opportunity for genre research to "find its most interesting futures challenging such simplifications" (295). Digital genres are rich sites of inquiry for Rhetorical Genre Studies, as they extend from related inquiries of genres in academic, public, and workplace contexts and questions of power, agency, identity, and the potential for innovation or intervention.

Whether researching genres in academic, workplace, public, or digital contexts, genre researchers have a shared interest in understanding genre knowledge, acculturation, navigation, and innovation, often in relation to power, agency, and identity. However, only a small body of scholarship, critical genre studies, within RGS explicitly deals with ideological-forward inquiries into genre. Critical genre studies investigates how genres, as rhetorical, ideological, and social forces, work to support some people and marginalize others, shape identity, enable or inhibit tasks, and create belonging or exclusion in organizations and institutions across academic, workplace, and public contexts. This role of genre in shaping routine activity is not neutral, but fundamentally ideological (Coe et. al, 2002), rooted in systems of power that situate individuals

in particular subjectivities (Paré, 2002) and establish normalized patterns of sanctioned activities (Winsor, 1999).

While genres can be defined by who is "in" (successfully enculturated novices; longtime, influential veterans) and "out" (novices trying to become members) critical approaches to genre remind us that this is never a neutral, apolitical, or natural way of things, but can indicate socially constructed and maintained borders that purposefully and effectively limit participation. Charles Bazerman explains that "going to the [genre] is only the first step … once you are there you need access and encouragement to engage with particular people in particular roles, use particular resources, and take part in particular experiences and activities" (14). Bazerman's emphasis on the particularities of engaging effectively in a genre speaks to the complexities involved; not only knowing the right people and knowing how to interact with them, but also knowing how and when to "take part" in certain moments.

Paré describes the "automatic, ritual unfolding of genres" as appearing "normal, even inevitable" at first take, but can be de-normalized by the "chinks that develop when a genre's facade of normalcy is cracked by resistance, inappropriate deployment, unfamiliarity, or critical analysis" ("The Rhetoric and Ideology of Genre" 59-60). Paré's study focuses on Inuit social workers' recordkeeping practices and the genre of the record as a site of conflict. Paré describes the incompatibility of social workers' cultural values with recordkeeping conventions and their reluctance to produce highly detailed accounts of client actions, and ultimately, "expose their clients … to white authorities" (63). While Paré acknowledges the social workers agency in making decisions during their recordkeeping, he highlights that they may ultimately be observers, rather than participants, in the construction of their identities in their recordkeeping (69).

The normativity of genre can also be disrupted when locating who, and what, is absent, and uncovering why these absences exist and persist. Chalice Randazzo emphasizes the need for genre researchers to look not only for what is present within genre, but what gets left out, the silences and absences ("Hearing Silence"). Through her study of Chinese students' resume and cover letter writing practices, Randazzo finds "systematic exclusions in the way [students] understand and follow resume and cover letter conventions .. patterned around race and political affiliation," where students purposefully omitted experiences and qualifications because they believed they would be perceived as problematic in an American context. Randazzo concludes that paying attention to these kinds of silences are important because "the exclusionary actions of genre practices are equally powerful as actions of functionality (or dysfunctionality)" ("Hearing Silence").

These critical approaches to studying genre work to better raise issues of injustice and privilege within genre theory, extending from acknowledging genres as "stabilized-for-now or stabilized-enough sites for social and ideological action" (Schryer 108) into questions of how that stability comes into being, at what consequences, and by whose expense. These studies describe the ideological nature of genres, as well as the ways participating in a genre affects identity construction and create and perpetuate imbalances in power.

Questions of access and security have shaped Rhetorical Genre Studies 'understanding of genre membership and acculturation as well. In her foundational theorization of genre as social action, Miller argues that "a genre embodies an aspect of cultural rationality" and is integral "to understanding how to participate in the actions of a community" (165). Genres are ways of knowing that enable entry (including an understanding of entry points themselves) into available social actions. Access into a genre, in part, means taking on and successfully learning this

cultural rationality. Attaining security (or "lasting" in a given system) means effectively drawing on this cultural rationality to effectively carry out actions enabled and supported within the genre. The attainment of access and maintenance of security within a given genre is not a neutral process, but one fundamentally shaped by power, ideology, and agency. As Jennifer LeMesurier explains, "genres are social actions, but they are also structures with fundamental insecurities … there is always the potential to incline genres towards ideologically nuanced purposes" (20) that may work to actively marginalize and disadvantage individuals and/or groups in a given system.

Genres work behind-the-scenes as tacit, understood, and normalized, but often emerge to the forefront in times of disruption and discord. Genres are, as Miller describes, "typified rhetorical actions based in recurrent situations" (159)— they work, they help get things done. They are also, as Bazerman describes, the mechanisms by which we accomplish things:

> the genres in which we participate are the levers which we must recognize, use, and construct close to type (but with focused variation) in order to create consequential social action … the machine itself only stays working insofar as we participate in it and makes our lives through its genres precisely because the genres allow us to create highly consequential meanings in highly articulated and developed systems. (113)

In other words, genres leverage and enable social action. However, genres are typified rhetorical *inaction* for some: the student that intends to start their essay, then stares at the blank Word document until they exit out, again and again; the Internet user who gets overwhelmed by the poorly organized information on a website; the community member who stops attending town meetings because of the limited ways to include their voice.

This discord and disruption is sometimes attributed to a mismatch between situational needs and existing genres (Campbell and Jamieson, 1978; Jamieson, 1975), where the "levers"

that used to enable meaningful rhetorical action no longer produces such effects. Sometimes, this discord and disruption is attributed to ineffective or insufficient genre knowledge in new or unfamiliar situations (Reiff and Bawarshi, 2011; Rounsaville, 2012; Tardy, 2009), where a lack of understanding of genre conventions, inappropriate deployment of conventions, or an ineffective transfer of genre performances in other contexts leads to stymied action.

Other genre scholars highlight the ideological nature of genre, emphasizing that genres ("levers") may simply be, by design, unavailable to certain people in order to preserve existing power relations and what is generally described as a systemic stasis. Paré, in his study of Inuit social workers' recordkeeping practices, outlines the ways their development of a professional identity conflicts with their existing cultural and rhetorical traditions. Although he recognizes that some rhetorical agency is available to the social workers to somewhat reconcile this tension, Paré concludes that "learning to participate in workplace genres means learning one's professional location in the power relations of institutional life" (193-4). Likewise, Berkenkotter and Huckin explain that genres help users participate and communicate in specific situations, and through that participation, uphold and perpetuate "norms, epistemology, ideology, and social ontology" (501). For both Paré as well as Berkenkotter and Huckin, genres have ideological consequences that, generally, must be adopted in order to participate in a given community; there aren't meaningful ways to intervene or change the genre to reconcile these issues. In other words, the genre is upheld to the benefit of the powerful and the privileged.

Even as Paré attests to the immense challenge, if not impossibility, of shifting the ideological tides of a given genre, he explains that "a genre's illusion of normalcy may be cracked or exposed at certain moments" (187), enabling a critical view of what has always been going on and opening up avenues for increased awareness, change, or even resistance. Similarly,

Dryer describes “exploitable fault lines” of institutionally entrenched, bureaucratically black boxed genres that often stymie critical engagement or critique at first glance, or through a typical interaction by someone too “within” the system, too enculturated. Within the system, Dryer explains, it can be difficult to “step outside” and observe the ways a given genre is maintained, sponsored, and upheld by insiders.

Paré and Dryer’s descriptions of the cracks and fault lines in a genre align with Schryer et al.’s description of genres as “in a constant state of construction; [genres] are dynamic; they are structured structures that structure” (66). Even as genres structure and enable certain kinds of genre performances, while limiting others, they are in flux; “stabilized-for-now or stabilized-enough sites of social and ideological action” (“Records as Genre” 208). Genres are structured, by something, by someone or some group, and work as sites from which social action emerges.

What Paré and Dryer allude to, and what Schryer et al. describes as the “structured structures” might be considered attention to the infrastructural underbelly of genre, exposed in times of crisis, breakdown, or disruption of some kind. As Paré describes, it is possible to “see *through* genre” (186, my emphasis) beyond this veneer, particularly in times of instability or disruption. But how do you study the cracks, the fault lines of genre? What can you “see through” to? If genres are “structured,” who does that structuring? What supports or enables genre “structuring”? What does this underlying structure look like “through” the cracks? Currently, the available methodologies within Rhetorical Genre Studies do not fully enable analysis that would answer these questions. Randazzo speaks to the difficulty of studying what lies outside, or underneath, genres, stating

> RGS scholars traditionally focus on people who are already part of (or are attempting to become a part of) a genre system and, often, the texts they generate as typified responses

> to recurrent situations. But excluded information and people are *typically already absent* from the system or text—silent either by choice or compulsion—making them difficult to trace with standard RGS methods. ("Hearing Silence")

While her purpose is to identify and better include the "silences" of a genre in its analysis, her observations resonate with this study, which works to study what exists "outside" or "underneath" the system and influences it. As Randazzo explains, locating and focusing on genre "outsiders," trying to identify excluded information, and attempting to "[identify] meaningful exclusions" are all ridden with methodological and theoretical difficulties.

Paré describes that, although genres within organizations and institutions may seem natural, their distinguishing features work to serve particular groups for particular ends:

> Institutional genres are successful patterns in local discursive forms and functions. In the institution's evolution of textual practices, they have proven effective and endurable; they have shown themselves capable of adapting to (and influencing) the changing scene. But their persistence is not the result of natural selection so much as human volition: genres are sociorhetorical habits or rituals that 'work,' that get something done, that achieve desirable ends. Their existence raises a series of questions that lead inexorably to ideology: For whom do they 'work'? To what end? Do they 'work' equally for all who participate in or are affected by them? (60)

Paré recognizes the difficulty of such inquiry, explaining that "discourse conventions may cloak vested interests or imbalances of power" (60). Within large institutions where power and knowledge is distributed across a wide range of departments by a range of mechanisms, it can also be difficult to identify who has the ability to challenge, change, or otherwise influence those conventions.

Although current approaches for studying genres, particularly critical genre studies, actively work to better center issues of agency, power, and identity within a genre framework that emphasizes the ideological nature of genres, there are limitations: 1) Ways to "uncover" silences and absences of social (in)action are currently limited and 2) when "exploitable fault lines" of a genre are identified (the places with potentiality for change), there are not current methodological approaches that outline routes for social actions that capitalize on these findings.

Existing Genre Frameworks: Genre Sets, Genre Systems, Genre Repertoires, and Genre Ecologies

Existing genre frameworks provide routes for studying the observable social actions within a particular context. These approaches to studying genres inform my infrastructural approach to studying both social action and inaction through my study of the WIC program. Each framework offers a particular understanding of genres as they relate to one another, regulate and shape social action, and coordinate across different scales and levels of individual, communal, and organizational activity. A genre sets framework, as theorized by Devitt, identifies and describes the sequential, routinized genres that coordinate action in a given community. Similarly, a genre systems approach, developed by Bazerman, traces sequential relationships across multiple genres but focuses on the full set of genres involved in coordinating *and* constituting the action of a given community. A genre repertoire approach, developed by Yates and Orlikowski, studies the sequential and overlapping coordination of social action via genre. And a genre ecology approach, as theorized by Spinuzzi and Zachry, describes a community's genres through mapping genres as mediating artifacts, which are historically embedded and socially influential and representative of a given community's distributed cognition.

Each of these existing frameworks locates, traces, and/or describes the social *actions enabled* via genre in a given community. They do not intentionally account for the inaction and stymied action that characterizes a community's genres. Additionally, these existing frameworks trace genres in relation to one another and as constitutive of activity, but do not trace the underlying structures that enabled the formation and evolution of these genres in the first place. These genre frameworks provide helpful entries into locating issues of access, but necessarily trace observable actions within a given context. There need to be better ways to map and study the observable actions *and* underlying actions that may go unnoticed in a traditional genre analysis.

There need to be better ways, too, of locating and analyzing genres that operate out of view and are not immediately available for observation. Graham Smart, in his ethnographic study of the genres and technologies that constitute the Bank of Canada's operations, identifies 34 "behind-the-scenes" genres that are essential part of bank communications but are "not visible to outsiders" (143) that are mediated by the bank's technologies. These "behind-the-scenes" genres are akin to occluded genres. Occluded genres, as John Swales describes in *Research Genres* (2004), are "out of sight" to "outsiders and apprentices" but serve an integral role in "support[ing] and validat[ing] the manufacture of knowledge" (46). Swales provides examples drawn from academic research, including tenure and promotion letters, editor correspondence, peer review reports. These genres can be considered occluded because although academics participate in them (by submitting their tenure portfolio, for example), the conventions, expectations, and ways these genres will be received are often obfuscated because the genre performance is often hidden or unavailable to newcomers. Clear exemplars of the genre may be unavailable, as well, creating a kind of mystery surrounding these genres.

There are a whole host of genres, however, that also operate "behind-the-scenes" but do not function as occluded genres. These genres are part of information infrastructure, the conglomerate of "people, processes, procedures, tools, facilities, and technology which supports the creation, use, transport, storage, and destruction of information" (Pironti 2006). In the section below, I explain in more detail what makes up information infrastructures, how genres are part of that infrastructure, and how locating and studying these genres can productively add to conversations within Rhetorical Genre Studies and Writing Studies more broadly about the relationship between genre and access from a critical perspective.

Information Infrastructure Studies: Infrastructure as relational, spatiotemporal, and human/nonhuman

I argue the concept of infrastructure, as situated within Information Infrastructure Studies, can help address the current limitations of a critical genre studies approach to theorizing and analyzing genres because it provides a way to locate and study genres that are not immediately observable or present. Information Infrastructure Studies is an emergent interdisciplinary body of scholarship, primarily situated in informatics, library science, and new media, that understands information infrastructures as relational, spatiotemporally situated, and human/nonhuman in nature. Extending from Star and Ruhleder's foundational description of infrastructure as "appear[ing] only as a relational property, not as a thing stripped of use" (113), studies of information infrastructure investigate the spatiotemporal relationships of human and nonhuman entities. In other words, information infrastructure studies understands infrastructure as observable only as a relationship between humans and nonhumans, not as a structure that can be separated out and studied independently.

Because of the relational nature of infrastructure, easy, compact definitions of infrastructure are hard to come by; instead, information infrastructure studies tend to provide key characteristics of infrastructure and empirically describe the function of both hard and soft infrastructural elements in a given organization or community. Star's study of biologists' work practices and communication patterns during the development of an electronic shared laboratory provides key properties of infrastructures:

> *Embeddedness.* Infrastructure is sunk into and inside of other structures, arrangements, and technologies.
>
> *Transparency.* Infrastructure is transparent to use, in the sense that it does not have to be reinvented each time or assembled for each task, but invisibly supports those tasks.
>
> *Reach or scope.* This may be either spatial or temporal—infrastructure has reach beyond a single event or one-site practice.
>
> *Learned as part of membership.* The taken-for-grantedness of artifacts and organizational arrangements is a *sine qua non* of membership in a community of practice. Strangers and outsiders encounter infrastructure as a target object to be learned about. New participants acquire a naturalized familiarity with its objects, as they become members.
>
> *Links with conventions of practice.* Infrastructure both shapes and is shaped by the conventions of a community of practice.
>
> *Embodiment of standards.* Modified by scope and often by conflicting conventions, infrastructure takes on transparency by plugging into other infrastructures and tools in a standardized fashion.
>
> *Built on an installed base.* Infrastructure does not grow *de novo*; it wrestles with the inertia of the installed base and inherits strengths and limitations from that base.

> *Becomes visible upon breakdown.* The normally invisible quality of working infrastructure becomes visible when it breaks: the server is down, the bridge washes out, there is a power blackout.
>
> *Is fixed in modular increments, not all at once or globally.* Because infrastructure is big, layered, and complex, and because it means different things locally, it is never changed from above. Changes take time and negotiation, and adjustment with other aspects of the systems are involved. Nobody is really in charge of infrastructure. (381-2)

Star's characteristics foreground the social, cultural, and technological nature of infrastructure. These characteristics also highlight some of the central challenges in studying infrastructure—namely, acknowledging its ubiquity and deciding where to draw boundaries. Johnathan Lukens explains that these relationships are complex, including both human and nonhuman elements:

> Infrastructures are not only the mechanical components, such as hard technologies (ducts, pipes, and wires), soft technologies (computer software, networks, and the World Wide Web), and socio-technologies (bureaucracies, rules, and procedures). [Infrastructure] also includes human operators and complex networks of relationships between the internal workings of the system and the outside environment in which it operates. (17)

Information infrastructures are socio-technological and relational in nature; they precede, enable, and support social action from the ground up. A study of infrastructure, then, is a "study of relations between [people] and mechanisms as they impact organized practices" (Johnson and Johnson 4). However, Bowker, Baker, Millerand, and Ribes explain that infrastructure is not merely a substrate upon which activity occurs, but is relational, dynamic, and the site of action as well:

> The term infrastructure is usually perceived as something 'just there,' ready-at-hand, completely transparent, something upon which something else 'runs' or 'operates' (a system of railroad tracks upon which rail cars run; a computer network upon which a research lab operates or disseminates data like the WWW) … [but] infrastructure is indeed a fundamentally relational concept; it emerges for people in practice, connected to activities and structures. (99)

Studies of infrastructure vary widely, including attention to the "hard" elements of infrastructure (the "tubes and wires") and the "soft" elements (the values, cultural attitudes, and social practices that inform the development, maintenance, and evolution of the "tubes and wires"). Studies of information infrastructure include attention to these hard and soft elements with particular attention to the ways systems are designed to collect, store, share, and destroy information (Pironti 2006). While not always separated out (and certainly not identified as genres as with an RGS perspective!), genres make up information infrastructures. Information infrastructures enable information storage, sharing, and destruction across individuals and organizations through a wide range of genres across the design process.

For example, if *Large Company* wants to implement new ways for multiple offices across the country to share information because business is growing, they may conduct feasibility testing for implementing updated arrangements of technologies, software, and standardized processes (called a Management Information System, or MIS) for office workers to collect and input information into their database. This feasibility study might be documented as a formal report and archived. When changes to the MIS are implemented, *Large Company* will document updated requirements (called a Technical Implementation Guide, or TIG). If the MIS has to be compatible with other systems (for example, point-of-sale technology for processing transactions

with customers), *Large Company* will also have to produce a Universal Interface (UI) and Functional Requirements Document (FReD) for ensuring that these systems can share information with one another, as well. All of these documents (feasibility study, TIG, UI, FReD) underlie the visible actions of *Large Company's* administration, staff, and customers as they engage with the arrangements of technologies and people in their everyday operations. These information infrastructure genres inform other genres that *Large Company's* administration, staff, and customers engage with directly for entering and gathering information, like forms, questionnaires, and software interfaces.

Star explains that the documents that make up information infrastructures, although highly technical in nature, "employ what literary theorists would call a master narrative, or a single voice that does not problematize diversity" (384). The built structures that underlie everyday activity tell a kind of story about the person engaging in those activities, what is imagined as acceptable and normal, and setting out what is expected and possible. Star provides the example of a medical history form "that encodes monogamous traditional heterosexuality as the only class of responses: blanks for 'maiden name' and 'husband's name,' blanks for 'form of birth control,' but none for other sexual practices that may have medical consequences, and no place at all for partners other than husband to be called in a medical emergency" (384). Star's identification of a medical form as an example of a facet of information infrastructure, and as a document that reveals a "master narrative" that encodes and upholds particular assumptions and values resonates with Bawarshi's genre analysis of patient medical history forms (PMHF) (2003) and his identification of the ideological consequences of their design and use. In his analysis, Bawarshi identifies how the form "is at once a patient record, a legal document, and an element in a bureaucracy … [and] also helps organize and generate the social and rhetoric environments

within which patients and doctors speak to one another … the form tends to discourage patients' reporting of mental or emotional circumstances of injury and illness, with the result that they may be incompletely or inaccurately treated" (551). Like Star, Bawarshi identifies how the form is ideological in nature, and alludes to the issues of access that might emerge from the ways patients can (and can't) include information on the form.

Genres, like the PMHF in a medical context, are part of wider information infrastructures across different contexts that dictate how information is collected, stored, shared, and destroyed, which has significant implications for studying the relationships between writing, technology, and access. Genres are always part of infrastructures, and in the case of information infrastructures, they are integral components of infrastructures. In the following section, I review relevant scholarship that engages Information Infrastructure Studies within Writing Studies.

Information Infrastructure Studies within and beyond Writing Studies

While current work that engages Information Infrastructure Studies within Writing Studies focuses on the relationships between writing and technology in only institutional contexts, this project examines writing that is both public as well as institutional. Recent studies have highlighted the utility of considering the infrastructure within the communities, organizations, and institutions we study, as well as the institutions where we teach and administrate. In their study of a nonprofit organization's content management strategies, Hart-Davidson et al. found that the network infrastructure underpinned the key practices of the organization (2007). Similarly, Frith's recent work analyzing the Tag Data Standard (TDS) as "discursive infrastructure" reveals the relational and intertextual nature of standards, the established technical requirements that standardize technical processes and methods. Frith argues

that the TDS is one example of many kinds of "invisible" writing that serves an infrastructural function for many: "Infrastructures are designed not to be noticed .. they become more visible when they stop working seamlessly and stop supporting behaviors for which they are built. The same is true of a range of documents that work as infrastructure … writing can be a substrate upon which material objects are built" (423). Although standards are written for internal use by a small group of individuals, and are not understood or noticed by most "outsiders" to a given organization, they enact significant rhetorical power in shaping the Electronic Product Code (EPC) database, which "gives a unique identity to a specific physical object" ("EPC Information") and enables actions like inventory checks and tracking across a wide range of industries.

Other work in information infrastructure within Writing Studies has focused on the relationships between infrastructure, literacy, and writing administration. Vee's work in identifying the relationships between technology, literacy, and infrastructure (2013) emphasizes the infrastructural functions of coding and the need for individuals to develop a coding literacy and "computational mentality." DeVoss, Cushman, and Grabill develop an infrastructural framework for facilitating students' new media composing by identifying the institutional structures and networks of the university (2005). Grabill has also prompted writing studies to consider writing programs as infrastructural, as they support the work of teaching, learning, and administration (2010). DeVoss, Cushman, and Grabill's work bears on issues of access through their attention to the influence of infrastructure on students' writing processes, writing program administration, and pedagogy.

However, studies of infrastructure with intersectional approaches to studying how the relationships between infrastructure, writing, and technology shape access exist outside of

Writing Studies. Intersectionality, theorized by Crenshaw in "Demarginalizing the Intersection of Race and Sex" (1989), acknowledges that racial, ethnic, gender, and sexual identities inform one another as people navigate the world—countering a "way of thinking about discrimination which structures politics so that struggles are categorized as single issues" (167). An intersectional approach to studying infrastructure, writing, and technology must take into account the ways individuals' intersecting identities contribute to different, and often inequitable, experiences of their textual and technological relationships to and experiences of infrastructure.

Studies of infrastructure and access that take up an intersectional approach beyond the field of Writing Studies include Noble's *Algorithms of Oppression* (2018), which lays out how Google's search infrastructure upholds and perpetuates racism and sexism through algorithmic design, the "mathematical formulations [that] drive automated decisions" (1) for the purposes of suggesting and amplifying information. Noble highlights the human decision-making behind creating Google's search algorithms and the effect of technological monopolization on global information flows that disproportionately harm "people are who are already systematically marginalized and oppressed" (3). Additionally, Gebru's work emphasizes the harmful effects of automated decision-making tools like "natural language processing tools to automatically determine one's suitability for a job, to health diagnostic systems trained to determine a patient's outcome" and the lack of documentation required from systems designers to provide a rationale for their algorithmic designs ("Understanding the Limitations of AI"). Gebru finds, like Noble, that these AI tools produce and uphold racism and sexism, enabled by this lack of transparency and accountability of designers. Noble and Gebru's work identifies algorithms as key sites of design where inequities are inscribed and resonates with Kevin Brock's work on the rhetorical nature of code (*Rhetorical Code Studies*), where algorithms can be understood as written

arguments. These studies highlight the value of studying information infrastructure through an intersectional lens, namely, that it's possible to locate sites of marginalization and inequity as they are first designed and implemented in complex systems.

In the next section, I outline how Rhetorical Genre Studies can be informed by Information Infrastructure Studies and contribute to conversations within Writing Studies about the relationships between writing, technology, and access from an intersectional approach. I explain how introducing an infrastructural perspective to RGS can accomplish this goal.

Rhetorical Genre Studies, Infrastructure, and Access

Introducing an infrastructural perspective to RGS attends to a necessary gap in studying issues of access. Specifically, I argue that more attention to genres present within information infrastructures can locate where issues of access emerge, and why they affect and bear on people differently. Read's "The Infrastructural Function" (2019) theorizes infrastructure "as a framework for articulating how writing products, activities, and processes underwrite organizational life in technical organizations" (233) and provides helpful groundwork for laying out the connections between genre, infrastructure, and access for my qualitative study of the WIC program.

Read provides a truncated set of characteristics derived partially from Star and Ruhleder's foundational characteristics of infrastructure specifically for use within writing studies. Read reviews existing work on infrastructure within writing studies and observes that "writing studies scholars … have not yet systematized what infrastructure means for writing in particular" (238). She then provides a theory of the infrastructural function of writing, outlining

four basic characteristics adapted from Star and Ruehleder's eight characteristics of infrastructures:

1. *inclusiveness*: a broad scope for what counts as writing
2. *relationally defined*: a focus on what writing does for something or someone (incorporates rhetorical genre theory)
3. *alliance brokering*: writing that mediates essential alliances
4. *mission critical*: writing that is essential to the operations of an organization

These characteristics outline several key features of writing's function as infrastructure: that a wide spectrum of texts (from polished deliverables to internal script outputs) can function infrastructurally, that these texts are intertextual and interwoven with each other, that these texts create relationships and connective nodes between people, tools, and other organizations, and that they constitute an organization's everyday operations. Out of the four characteristics, Read's theory most emphasizes the relational functions of writing: "Just as a huge bridge to nowhere has no infrastructural function for an economy or for a local population, a writing product or activity—no matter how well written or well executed—has no infrastructural function if it does not underwrite the operations of an organization" (251). That writing must be useful and must be used sounds commonplace, but serves as a critical function of writing that functions as infrastructural: behind-the-scenes, invisible, often unnoticed. This writing, too, necessarily must be useful and ready-to-use, as it underlies the day-to-day work of an organization.

Read notes the connections between her infrastructural theory of writing and that of Rhetorical Genre Studies. She states, "[the] move to define genre or any generic text via its social action is another way to understand the relationally defined element in regard to the infrastructural function of writing—genre as social action is just another way of defining for

what or whom writing functions as infrastructure … genres, like bridges, must do more than simply exist; they must do something meaningful for the people or organizations relying on them" (252). The resonances between Read's description of writing-as-infrastructure and genre theory are clear, but I think should not be conflated. Rather, understanding writing as infrastructure, and therefore, genres as serving some kind of infrastructural function (for certain people, at certain times, for particular outcomes) should be understood as a symbiotic theoretical relationship. Genre theory provides a rich repository of theorization of writing and methodological approaches to studying writing systems, but currently contains a meaningful gap in terms of identifying, studying, and thoroughly analyzing "behind-the-scenes" genres that are part of information infrastructures, which might only be noticeable or accessible during infrastructural breakdown or dysfunction.

To be clear, there is a difference between understanding genres as infrastructural in nature and studying a genre that's part of an information infrastructure. We can understand any genre as infrastructural. For example, from an infrastructural perspective, a patient medical history form (PMHF) (to use Star and Bawarshi's example) is a genre that can be described as infrastructural in nature. The PMHF can operate infrastructurally for patients, doctors, and staff in medical contexts. From the perspective of a patient, the medical form can helpfully relay medical information to the doctor, providing necessary context for social actions like developing a care plan or prescribing medication. From the perspective of a doctor, the form crystallizes a patient's medical history into a chronologically driven account of chronic and acute conditions, enabling faster routes to diagnose, treat, and refer patients to specialists. From the perspective of office staff, depending on the MIS, the form enables streamlined data input, storage, and retrieval, producing more efficient administrative work.

Analyzing the PMHF from an infrastructural perspective, however, requires understanding the technical genres, technologies, and human interactions that are in relationship with the form. It would be necessary to research the layers of bureaucratic and institutional stakeholders that influence the end design of the form, with particular attention to genres operating as part of the information infrastructure. For example, an infrastructural analysis would require understanding why a given clinic's PMHF looks the way it does—is there a universal template established by a professional organization? Are there design choices that people within the clinic made at some point in history, or was this form passed down from another organization? How does the form's design relate to the MIS and the way patient information is stored and shared? Identifying the genres operating "behind-the-scenes" that influence the design and use of the form would provide a necessary context for the study, particularly when understanding how the PMHF shapes access.

To understand how the form shapes access for patients, for example, this infrastructural analysis would need to collect data about patients' experiences navigating the form and its effects on patient-doctor conversations. This data would need to be contextualized within an understanding of the textual, technological, and human relationships of the PMHF. With an intersectional approach, it would be necessary to foreground how a patient's identities (race, class, gender, disability) informs these experiences with the PMHF within this contextualization.

Because infrastructural analysis benefits from changes or disruptions, this analysis might capitalize on changes to the information infrastructure in which the PMHF is embedded. For example, in March 2016, federal data requirements for collecting patient information changed to include "sexual orientation" and "gender identity" by the United States Health Resources and Services Administration (HRSA) agency. In addition, the Centers for Medicare and Medicaid

Services and the Office of the National Coordinator of Health Information Technology "issued rules requiring all electronic health record (HER) systems certified under the Meaningful Use incentive program to have the capacity to record, change, and access structured SO/GI data" ("Collecting Sexual Orientation and Gender Identity Data in EHRs"). An infrastructural analysis might use this change as a way to help identify key stakeholders and the "old language" of existing PMHFs. Additionally, this change might aid in studying the updated language and its effect on access for LGBTQ+ patients that are often referred to as "systemically" disadvantaged and marginalized by the absence of available ways to have their sexual orientation and gender identity documented, stored, and shared with doctors and staff.

Infrastructures are easy to overlook, but as Grabill warns, "to ignore infrastructure … is to miss key moments when its meaning and value become stabilized (if even for a moment), and therefore to miss moments when possibilities and identities are established" (464). Ignoring information infrastructure genres risks overlooking the "glitches" and "breakdowns" that may occur when people try to participate and are unable to do so; moments that may go unnoticed in a genre analysis that only traces observable social action.

In Chapter Two, I outline in more detail how I designed the qualitative study of the WIC program, decided on the triangulation of methods, and carried those methods out.

Chapter Two: Finding and Analyzing the APL Through an Infrastructural Perspective

In late February of 2020, a much different version of this dissertation project was approved, with a defense scheduled for the third week in March 2020. By the second week in March, a large majority of the United States had entered lockdown because of the COVID-19 global health crisis: university students were asked not to return from their spring breaks, restaurants and retail closed their doors, and I started getting concerned that I might need to delay the start to my four-month ethnographic study about a month or so. Originally, my project consisted of participant observation and interviews with moms and caretakers in the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC). I planned to carry out this research in the summer of 2020, after I had passed my proposal defense and given birth to my first child. Admittedly, I'd pictured myself as a researcher-supermom, bringing my newborn along as I met with fellow moms and worked to understand more about their experiences in the WIC program. I wanted to understand issues of access from their experience of technologies within the program, specifically, the mobile phone applications and new Electronic Benefit Transfer system. I'd planned to observe the key actions of the program (meal planning and preparation, scheduling and attending doctor's visits, and completing nutrition education) with attention to how these digital genres functioned infrastructurally, or not, through these technologies and platforms.

By the time my proposal defense arrived, it was becoming clearer that the Covid-19 pandemic was not going away any time soon. Carrying out qualitative research in the manner and scale I had originally proposed was no longer possible, and I simply could not justify placing labor onto research participants in addition to the stress, chaos, and uncertainty that had already been added to their lives because of the pandemic. The new requirements the Institutional

Review Board outlined for all human-subject research in light of the pandemic radically restricted what kinds of interactions were possible with research participants; only essential in-person research was permitted initially. Beginning June 3rd, the Human Research Protection Program (HRPP) placed the University of Kansas at Phase 1 of a four-phase human subjects research reactivation plan ("Human Research Protection Program"). Instead of normal protocols and regulations, only IRB proposals that directly studied COVID-19 would be considered, as well as certain longitudinal studies and studies with direct benefit to participants ("Preliminary Activation"). While some restrictions have been adjusted with the Phase 1 expansion, my IRB was approved only after I made adjustments to my protocol sheets confirming that I would do no in-person data collection of any kind, and instead commit to digital data collection exclusively. And beyond the institutional changes that radically limited the ways my research could proceed, I was now a new mom, responsible (along with everyone else taking care of someone), for a continual, exhausting risk assessment and management that made the prospect of being out and about conducting research not only irresponsible, but likely dangerous.

Furthermore, the site that I had planned to study, the local WIC branch, had also undergone substantial changes. The community health building that housed the WIC offices was closed to the public indefinitely, and the normal functions of the WIC office quickly shifted away from in-person interactions. My plans for participant observation were no longer feasible, in part because there wasn't a centralized site from which to observe. Other public spaces I'd planned to accompany WIC participants to, including the grocery store, had changed in light of the virus: arrows and floor markers dictated how shoppers should walk, and importantly, stores were out of stock of many WIC-approved items, making the experience of grocery shopping stressful and uncertain.

Additionally, the once-stable routes for designing and carrying out the research project within my department (and more broadly, discipline) had also changed. When filling out previous IRB proposals, I used to be struck by the strangeness of explaining my human subjects research using the same document as medical researchers and psychologists. My research designs, although replete with ethical considerations (including the roles and responsibilities of researcher and participants, issues of agency and power within the researcher-participant relationship), historically did not require me to make choices that could be a matter of life and death. For the first time, at the forefront of my attention was the safety and physical well-being of participants.

In short, I was experiencing the infrastructural breakdown of my dissertation plans. The routinized, ready-at-hand routes to carrying out the qualitative study I had planned had become painfully de-routinized, going functionally off-the-rails. The institutional systems which I relied on to support the key actions of my research had changed and transformed in response to COVID-19. The new IRB requirements, the phased human subjects reactivation plan, and the changes to the WIC site itself made carrying out my original project impossible. What had always seemed normal and routine became de-normalized, thrown into relief mid-breakdown (Star and Ruhleder, 1996). It is commonplace among infrastructure studies researchers that studying infrastructure amidst a breakdown is ideal, even necessary in order to see and understand it at all. Susan Leigh Star describes that "infrastructure becomes visible when it breaks: the server is down, the bridge washes out, there is a power blackout … even when there are back-up mechanisms or procedures, their existence further highlights the now-visible infrastructure" ("The Ethnography of Infrastructure" 382). Although the breakdown creates new uncertainties and chaos, importantly, it reveals what has always been happening, what might

have always been broken, or always at the precipice of breaking. My intent to carry out research had always felt like a given, but in the light of the pandemic, it was clear how tenuous that ability was.

Mid-breakdown, the genres that normally operate in the background of a system come to the forefront, often in part because they no longer serve their purpose in the midst of new chaos and exigencies. What is often alluded to as "systemic" breakdown is actually the breakdown of genres-stabilized-enough (Schryer) no longer. My IRB documents, including my protocol, consent form, surveys, and instruments for recruitment (email and phone scripts) no longer suited the situation at hand, nor did they align with the new COVID-19-specific institutional genre system of the university IRB office. As such, they no longer served as genres that enabled action.

Prior to the pandemic, these genres were supported by the genre system of the university IRB office, normally invisible to me. The Department of Health and Human Services and United States Food and Drug Administration create and distribute general guidance documents ("Clinical Trials and Human Subject Protection") for university Institutional Review Board offices to assess research projects like mine against a standard of ethical research practices. However, in the wake of the pandemic, these guidance documents had to be updated for the new health and safety impacts of human subjects research. These genres had to change, and as such, they came to the forefront of my attention as I revised my IRB documents to align with these new guidelines. For the university IRB office, these guidance documents are not infrastructural, but central to their everyday work. In my role as a researcher, however, these guidance documents served as infrastructural genres in previous IRB-approved projects, but came to the forefront of my attention as I worked to conduct qualitative research during the pandemic. The

interpretation of infrastructure, including the roles of genres that make up a given infrastructure, ultimately depends on perspective.

Although COVID-19 brought plenty of chaos and uncertainty to my project trajectory, it also brought a unique opportunity to study the infrastructural function (or perhaps more appropriately, dysfunction) of WIC genres mid-breakdown. Additionally, the inability to study a highly localized context shifted my attention to other possibilities, resulting in a broader qualitative study of WIC as it functions across nine different states. Just as the pandemic had foreclosed the ability to proceed with "Plan A" of this dissertation project, the pandemic opened doors to study interactions within the WIC programs in ways I could have never previously imagined, in part because the WIC program fundamentally looked different under a state of emergency.

In this chapter, I explain how this project came to focus on the Approved Product List, as well as the rationale for the triangulation of methods (resistant reading, infrastructural inversion, and interviews) for analyzing the APL's role in shaping access within the WIC program. I also explain how I took a participatory critical rhetoric approach to studying the APL and engaging with WIC participants throughout the interview process. This triangulation of methods enables me to answer my research questions for this study. Engaging infrastructural inversion as a means of resistant reading answers my first question: How does the APL function infrastructurally within the WIC program? Bringing these findings into conversation with experiences of WIC participants gathered from interviews answers my second and third questions: How do WIC participants navigate their grocery shopping experiences mediated by the APL? And broadly, how do genres, infrastructures, and access relate?

Finding the APL

This study's focus on the Approved Product List (APL) came to be through a series of "ruptures" brought about by the pandemic. My original project's focus centered on WIC participants' usage of WIC mobile phone applications, including WICShopper, which digitized two key genres of the program: the Allowable Foods List and assigned Food Packages. The Allowable Foods List is a compendium of WIC-eligible food items available in a given state. For example, Alaska's Allowable Foods List includes a section for eligible breads that can be purchased using WIC benefits ("Alaska Approved Foods List, January 2020"). The Allowable Foods List is a representation of all eligible WIC food items, which WIC participants must compare against their assigned food package, the types and amounts of food they are eligible to purchase monthly, to determine their available benefits. For example, if a WIC participant has already purchased two of their three loaves of bread as part of their food package, they can consult the Allowable Foods List to remember which brands, sizes, and types of bread are eligible for this purchase.

I wanted to investigate how WIC participants use these genres while grocery shopping to identify issues of access present during their work to redeem their WIC benefits. However, as the pandemic emerged and began to progress, I began to notice that the National WIC Association website, the "non-profit education arm and advocacy voice of the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC)," started making available internal documents to download. These internal documents were being shared on the website perhaps in part because there was no centralized hub for state-level WIC agencies to communicate and collaborate with other states in their approach to creating updated policies and practices in the wake of the pandemic. However, some documents being shared appeared to be in error, like

conference call notes between the major Electronic Benefit Transfer and Point-of-Sale contractors and WIC administration.

These conference call notes, titled "Exploring Technology Solutions for WIC During COVID Outbreak," evidence the kind of "ruptures" that become visible, and the genres that emerge, in the midst of breakdown, kinds of documents I typically would never have had access to as a researcher. The language of the conference call reflects the uncertainty and instability of the situation:

- "Rapidly changing environment. Clinics are closing."
- "Lack of availability of prescribed foods (milk, formula, etc.)"
- "Modifying certification end dates. Trying not to violate federal regs."
- "Need for workgroups focusing on specific topics: online EBT; offline EBT; MIS; retailer; food management (APL relaxation); food instrument issues; data and information management"

("Exploring Technology Solutions for WIC During COVID Outbreak")

These notes stand in stark contrast to the polished, public-facing documents normally available on the WIC website, and this was the first mention of the APL I had come across during my research. Although I had begun some preliminary research of the WIC program's shift to EBT technologies, it was only through reading through these call notes that I understood there was a need for "APL relaxation" in the midst of the pandemic.

While a transcript or recording of the conference call itself is unavailable to the public, the meeting notes provided me necessary insight into a key genre, the APL, as well as a preliminary understanding that the APL was connected to the management information system (MIS) and Electronic Benefit Transfer system (EBT). This document is one example of the kinds

of "ruptures" available for analysis within a system responding to unanticipated changes. This document opened up the potential to identify and further research key stakeholders controlling and influencing the EBT system in WIC, stakeholders which were prominently absent from all public-facing WIC documents.

Additionally, the WIC program received greater public attention, particularly early on in the pandemic when grocery shelves were empty. *Buzzfeed*, *USA Today*, and *The Today Show* all published articles on dry goods shortages, including canned beans and baby formula, and their detrimental effect on WIC shoppers ("NWA COVID-19 Resource Articles"). This increased publicity, both of the internal workings of the program and its challenges serving program participants mid-pandemic, provided early insight that amidst the COVID-19 pandemic, the WIC program was experiencing significant change, warranting a closer look. I was watching the WIC genre system in action, working to respond to the crisis, and through that observation, I was able to understand a great deal more about the system as it was now and as it used to be. This initial, but consistent, observation of the WIC program in flux helped transition the focus of this qualitative study from a highly localized context to a broader observation and analysis of the APL as it functions across different states and counties.

In short, my exploration and analysis of the role of the APL in shaping access for WIC participants during their grocery shopping experiences was made possible because of the "breakdowns" brought about by the pandemic. In the next section below, I outline the site for study and the participants, then how I approached data collection and analysis for understanding the role of the APL in shaping access for WIC participants.

Site and Participant Description

Site Description

WIC is a national program that "provides Federal grants to States for supplemental foods, health care referrals, and nutrition education for low-income pregnant, breastfeeding, and non-breastfeeding postpartum women, and to infants and children up to age five who are found to be at nutritional risk" (USDA). Nutritional risk is defined through the WIC program by taking into account the following factors: assumed risk factors (resulting from a failure to meet Dietary Guidelines via the diet assessment), auto-calculated risk factors (including inadequate prenatal care), and miscellaneous risk factors (including histories of low birth weights or celiac disease). While nutritional risk and food insecurity are differentiated within WIC nutritional risk assessment forms, food insecurity factors (including living in a food desert) are also assessed.

The WIC program is available in all fifty states, thirty-four Indian Tribal Organizations, and all U.S. territories. WIC is administered by ninety state agencies, which provide health screenings, nutrition and breastfeeding counseling, immunization screening and referrals, and substance abuse referrals. WIC serves nearly half of all infants born in the United States ("Special Supplemental Nutrition Program for Women, Infants, and Children (WIC)"). Increased access to food, information, and healthcare is central to WIC's mission, with the specific goal to resolve participants' food insecurity and nutritional risk, promoting an overall security (both in their ability to attain food and maintain a healthy lifestyle). WIC is a federal program that is characterized by both a streamlined set of bureaucratically produced and distributed genres (including program guidelines, form templates, and nutrition-focused resources) and genres produced and distributed by county-level WIC offices (including promotional and informative materials that are city and county-specific). In the midst of the COVID-19 pandemic, as noted

before, the program has had to undergo changes to nearly all of their basic functions, given public health mandates for limited building capacities, social distancing, and quarantine.

This project is a multi-site observation and analysis of the APL spanning nine states: Florida, Kansas, Kentucky, Massachusetts, New Hampshire, New Jersey, New York, North Carolina, and Washington. These states were not chosen, but emerged from convenience sampling participants for this study (see Participant Description). Each state has a different APL, different stakeholders (including vendors, EBT and POS contractors, and WIC state-level administrators), and population of WIC participants enrolled in the program. Additionally, each state has a different Information Management System (MIS) that controls how information is gathered, stored, and distributed throughout the system, guiding and influencing functionally every key action of the program, including those related to grocery shopping (establishing a participant's WIC food package, translating those elements into either a series of monthly paper checks or "vouchers," or loaded onto an EBT-card, ensuring that the voucher/card is functional at the grocery store when redeeming benefits, tracking benefits that have been utilized or are still available, etc.).

Participant Description

Interviewees were based in eight states: Florida, Kansas, Kentucky, Massachusetts, New Hampshire, New Jersey, New York, North Carolina. I utilized convenience sampling as the method for recruiting participants for this study. A convenience sample is "a sample in which research participants are selected based on their ease of availability … essentially, individuals who are the most ready, willing, and able to participate in the study" (Given 18). I chose convenience sampling as my method for recruitment because I could only recruit participants

virtually, instead of recruiting participants at the WIC clinic and in the surrounding neighborhoods through posters and handouts. Because the focus of the study shifted from a highly localized observation and analysis of WIC participants in a medium-sized Midwest city (and therefore a targeted recruitment of WIC participants), convenience sampling allowed a more flexible approach that still aligned with my second research question and the data I needed to collect to answer that question.

Convenience sampling has several affordances for my project, particularly under the constraints of conducting qualitative research during the pandemic. I could reach out to a large number of WIC participants, staff, and vendors across the United States without any kind of initial "filter" that ruled out particular participants, staff and administration, or vendor representatives. Additionally, because I was not conducting quantitative research and looking to generate statistically significant conclusions, I used convenience sampling as a way to "[obtain] a range of attitudes and opinions and in identifying tentative hypotheses that can be tested more rigorously in further research" (Galloway 2005). In short, convenience sampling allowed me to make the best of the situation, get in contact with who I could, and work to answer my research question through a flexible means of data collection.

That being said, convenience sampling does has several shortcomings that must be addressed. First, convenience sampling did not ensure representativity in terms of WIC's population demographics. Because my project seeks to identify what Dryer describes as the "injustices" of a given genre, I had to negotiate between the need for a flexible data collection method and the need to, as much as possible, accurately include and represent the diverse experiences of women and caretakers who participate in the WIC program. In order to have some representativity within my convenience sampling, I collected demographic information from

participants using the following categories (aligned with WIC's Participant and Program Characteristics data categories): race and ethnicity, program status (pregnant, postpartum and/or breastfeeding), family size, and nutritional risk status. I also collected participants city and state of residence, as well as their time in the program. In order to establish general representativity, particularly among the WIC participants I interviewed, I contacted approximately 60 moms and caretakers (including "WIC Dads") to explain the project and what an interview would entail. In Table 1, I outline this demographic and geographic information for each participant I interviewed. In Tables 2 and 3, I outline the basic information about WIC staff and administration, as well as vendor representatives. While I was grateful to be able to generate some representativity of the WIC program's demographics through convenience sampling, in future data collection for this project, I recognize that a more rigorous approach is needed for testing the tentative hypotheses that emerge from this study.

Table 1: WIC Participant Demographic and Geographic Information

Participant Pseudonym	Race/Ethnicity	Program Status	Nutritional Risk Status	Family Size	State of Residence	Time in Program (in years)
Lilah	NH*, white	PP**	Diet-based	4	NJ	1.5
Jackson	NH, white	n/a	n/a	4	NJ	1.5
Kassandra	NH, white	PP, BF***	Diet-based	5	KY	4
Lourdes	Hispanic	PP	Diet-based	4	MA	2

Adaline	NH, white	n/a (caretaker)	n/a (caretaker)	5	FL	1.5
Lavender	NH, white	P****	Medical	2	NH	0.5
Brianna	NH, white	PP	Diet-based	10	KY	5
Victoria	NH, Black	PP	Diet-based	4	NY	4
Harmony	NH, Black	PP	Diet-based	4	KS	3
Nina	NH, Black, white	PP	Medical	4	NC	2

*Non-Hispanic

**Post-partum

***Breastfeeding (partially or full)

****Pregnant

Table 2: WIC Staff and Administration

Vendor Name	Jovi	Marcus
Job Title	State WIC Director	APL Manager
Job Description	Responsible for overseeing local WIC clinics, participating in WIC workgroups for technological innovation	Responsible for working with dietitians and WIC staff to maintain the Approved Product List (APL)

Years employed	5	2
State	Undisclosed*	Undisclosed

*State identification has a direct link to identifying participants and will be omitted from this study

Table 3: WIC Vendor Representatives

Name	Kailey	Beth Ann
Job Title	Retail Clerk	Manager
WIC-related responsibilities	Responsible for stocking shelves, updating store signage and shelf labels, and cashier service.	Responsible for overseeing cashier training for WIC transactions
Years Employed	1	3
State	WA	WA

I recruited participants using IRB approved (STUDY00145763) recruitment emails, Facebook Messenger scripts, and confirmed consent through written consent forms that participants signed. I emailed participants that had agreed to be interviewed as part of the preliminary pilot study for this project, as well as WIC staff and vendors that had publicly listed contact information. I reached out to WIC participants primarily through Facebook Messenger. During the emergence and persistence of the pandemic, Facebook was a central hub for WIC discussion. WIC participants contacted their WIC clinic via their public pages, commented on circulating articles from major news sites about WIC product shortages at grocery stores, and posted their stories and categorized them as ‘Public’ so they were viewable to anyone with a

Facebook account. I contacted WIC participants that were actively engaged in talking about WIC in these public spaces of Facebook and using my IRB-approved script, asked if they would be comfortable being interviewed by me about their experiences. I used my personal Facebook account and disclosed I was a researcher from the University of Kansas in the first sentence of my recruitment script. I anticipated that there would be some trepidation from WIC participants because I was a stranger, and some participants did have questions about the study initially. Overall, however, participants that agreed to be interviewed were enthusiastic to talk about their experience because, in the wake of the pandemic, many people were having a difficult time getting in contact with their WIC clinic, getting answers to their questions, and navigating grocery shopping. In short, people were really frustrated and wanted to talk about what was going wrong, and were already having those conversations on Facebook.

As a researcher and not a participant in the WIC program, I was carefully attuned to the power dynamics at play. In order to ensure that WIC participants both understood that they were not required to participate in this research *and* felt that they weren't required to participate, I reminded participants at the beginning of the interview and throughout they had the option to skip questions, retract information, or remove themselves from the study. Additionally, I found that I needed to be proactive in scheduling interviews at times that were actually convenient for participants. Participants tended to be overly accommodating when I asked when they could be interviewed, after clarifying, most participants asked that I call/FaceTime after the workday and they had put their kids to bed.

Additionally, I had to be proactive in suggesting rescheduling and pausing interviews when unexpected situations arose (for example, kids putting toys in the dryer!) because participants felt obligated to continue the interview and not "waste my time" (personal interview,

Adaline), even though I was taking time out of their day for the interview. While I could not change participants' incredible generosity and willingness to change their schedules to accommodate my research, I did work to mitigate this because it created additional labor for them and extended from the belief that my work was more important because I was the researcher. Additionally, I was able to compensate each interviewee with a $20 Amazon gift card as a way to thank them for participating the study. Because part of the study investigated the highly prescriptive nature of WIC benefits and how limiting those can be, I chose an Amazon gift card as a means of compensation because it can be used to purchase a wide range of products.

Data Collection and Analysis

In order to understand how the APL shapes access, I had a rather steep learning curve in order to understand the complex world of information infrastructure and how the APL, as part of this infrastructure, relates to other texts, technologies, and people in functional and ideological ways. An information infrastructure is "a shared, evolving, heterogenous installed base (which is also open and standardized) … a shared resource, or a foundation, for a community" (Hanseth 2010). WIC's information infrastructure is comprised of the Management Information System (MIS), a sprawling collection of technologies (hardware, software), texts (design documents like the Functional Requirements Document [FReD], the Universal Interface [UI] and the Approved Product List [APL]), and people (including WIC staff, administrators, vendors) that all contribute to the storage, maintenance, and sharing of information across the WIC organization ("Technical Documents").

I also had to figure out how to study the APL in the midst of the pandemic and wanted to find a way to capitalize on the "breakdown" of normalcy and the emergence of ruptures like the uploaded call notes. Still, I wanted to be able to understand how the APL "normally" functions during times of relative stability. State APLs are readily accessible on WIC state agency websites, typically under sections for vendor resources. Once I had accessed different APLs, I drew on Dylan Dryer's method of resistant reading, then utilized information scientists Susan Leigh Star and Geoffrey Bowker's method of infrastructural inversion as a means of resistant reading as a way to contextualize the data I gathered from interviews. This approach enables me to study the APL, a genre that's part of WIC's information infrastructure, and understand how the APL shapes access for WIC participants.

Resistant Reading

In "Taking Up Space: On Genre Systems as Geographies of the Possible" (2008), Dylan Dryer develops a method of "resistant reading" to locate (and intervene within) the "injustices that some genre systems reflect and produce" (504). Dryer outlines this approach to analyzing genres as a practice distinct from a merely cynical or oppositional reading; instead, a resistant reading reveals why social inaction may occur in engagements with technical, complex genres like zoning codes. Dryer utilizes the following processes as a way to analyze the zoning codes:

- Approaching the genre as an outsider
- Historicizing the genre in order to understand the consequences of the assumptions "built into" the genre
- Articulating the rationale for the design of a genre (the "why" behind the "what")
- Locating changes and modifications to the genre

- Identifying how the genre produce and "inscribe readers and writers within networks of social relations that forestall change"
- Outlining the affective consequences of interacting with the genre

("Taking Up Space")

Dryer argues that such an approach is necessary because, at face value, zoning maps do not reveal the process and reasons for decision-making that lead to their final forms:

> [A zoning map does not] convey the *rationale* for the zonings and rezonings it indicates; it merely states baldly what was—at some point—the will of the Common Council. Nor indeed can the map indicate when these areas were zoned or rezoned, or by whom, or in whose ward, or how these zones were previously classified, or the material consequences of that rezoning on the landscape … it's a classic example of what Barton and Barton would call a 'suppression of the act of production;' in this case, one that effaces the motives and process of negotiation that resulted in these zoning demarcations, and denies the fact that this text is constantly revised. (514)

In other words, to understand not only what zoning codes do, how they enable social action for particular people, a resistant reading uncovers how zoning codes came to be, and how and why they function for certain people, but not others; how they generate social action *and* inaction. The zoning maps represent the "suppression of the act of production" (514): the maps don't showcase the key stakeholders who make decisions about zoning and rezoning, or the negotiation of the rules and processes for such actions. Instead, they only represent the outcome of those negotiations and resist critical analysis because, as zoning maps, they rhetorically work to appear neutral and objective. Likewise, the APL represents approved, WIC-eligible food

items, but shows little else. It is only through understanding how the APL came to be, why it exists, and how it works (and for whom) that its significance becomes clearer.

This method of resistant reading aligned with my goal to understand how the APL shapes access during WIC participants' grocery shopping experience. However, Dryer's resistant reading looks at zoning codes, a "genre system not only read and written by the Department of City Development, but also—crucially—by many of Milwaukee's citizens, who find themselves 'hooked into' the reproduction of antiquated urban-planning conventions" (507). The APL, on the other hand, is a genre embedded within the WIC program's information infrastructure; one of its defining qualities is that it's interacted with indirectly by WIC participants. Additionally, Dryer's resistant reading didn't fully account for the "breakdowns" introduced by the pandemic as part of the method. This was important because I wasn't analyzing the APL as it operated normally, like the zoning codes. Instead, I was trying to study the APL during a time of instability and chaos, where the WIC program had changed significantly because of the pandemic's effects. Drawing on the method of infrastructural inversion, utilized primarily within information sciences and new media studies, addressed these needs and provided a way to study the APL with an infrastructural lens while enacting Dryer's outlined processes for resistant reading.

Infrastructural Inversion as a Means of Resistant Reading

Infrastructural inversion is a method developed by information scientists Susan Leigh Star and Geoffrey C. Bowker to bring to the forefront of analysis the classification and standardizations (including standards and protocols) that make up information infrastructure. They describe infrastructural inversion as

> recognizing the depths of interdependence of technical networks and standards, on the one hand, and the real work of politics and knowledge production on the other. It foregrounds these normally invisible Lilliputian threads and furthermore gives them casual prominence in many areas usually attributed to heroic actors, social movements, or cultural mores. (36)

Bowker and Star suggest tracing the "cumulative mess" of a given system, a "reverse engineering [that] reveals the multitude of local political and social struggles and compromises that go into the constitution of a 'universal' classification" (48). In this tracing, Bowker and Star describe infrastructural inversion as involving uncovering the "practical politics of classifying and standardizing" (44). Information infrastructure development and management takes place within institutions and is not readily identifiable or visible to those utilizing technology within an institutional context or the wider public. However, the information infrastructure defines and influences the genres that extend from that system. The standards, protocols, and other technical documents that mediate and maintain the information infrastructure are markedly invisible to everyday participants.

Infrastructural inversion maps on well to Dryer's resistant reading, with a similar focus on uncovering the "practical politics" (what Dryer calls the "rationale") for how a genre came to be, and what injustices it perpetuates. Infrastructural inversion capitalizes on the breakdowns and attendant "ruptures" that emerge during times of uncertainty to uncover these "practical politics" and to better understand how people are served (and not served) by infrastructure, and how that can be traced back to design choices from key stakeholders during times of stability. Utilizing infrastructural inversion as a means of resistant reading enables me to utilize Dryer's general processes with particular attention to the APL's role as part of WIC's information infrastructure

during the pandemic. Additionally, utilizing infrastructural inversion as a means of resistant reading foregrounded the textual, technological, and material factors that define WIC participants' experiences grocery shopping, as well as the spatiotemporal "when" of access. WIC participants must navigate the grocery store to collect food items prior to checkout, then must navigate the checkout process mediated by the cashier, point-of-sale technologies (cash register, scanner, PIN pad), and the APL. Importantly, this navigation is different, to an extent, every time: items are no longer in stock; participants are under a time crunch that day; the cash register is "glitching." As described in more detail in Chapter One, the concept of infrastructure places far less emphasis on the "what" than the "when;" in other words, infrastructure is a relationship that happens, not an a priori system that exists. Infrastructural inversion helped embrace the inherent messiness of explaining how the APL relates to key stakeholders and functions in fairly stable ways, as well as acknowledging the spatiotemporally-bound, highly situated experiences WIC participants have while grocery shopping that are indirectly influenced by the APL.

I approached the APL as an outsider after seeing it mentioned in the WIC call notes. Then, I found more information about the APL on the WIC website ("Use of Manufacturer-Provided Nutrition Information to Determine WIC Food Item Eligibility") and researched the history of technological innovation within the program, including the different benefit redemption methods (Blumenthal). From there, I had enough of a working understanding of the APL to map out the key stakeholders of the genre, as well as its primary functions. As I mapped, I continued my research and drew on primary materials from the National WIC Association (NWA) and WIC's compendium of Electronic Benefits Transfer (EBT) and Management Information Systems (MIS) guidance and resource documents. Through this research I was able to articulate the rationale for the design of the APL, as well as locate changes and modifications.

Infrastructural inversion is a method that "entails a figure-ground reversal … bringing the infrastructural 'ground' up front [to facilitate] understanding of how complex chains of material relations reconfigure bodies, societies, and *also* knowledge and discourse in ways often unnoticed" (Harvey et al. 3). Gregory C. Bowker (1994) first outlined the method of infrastructural inversion as a way for a researcher to "reveal" the function of infrastructure through inversion. Bowker provides the example of the role of changing systems of food product and improved sewer systems in improving life expectancy in the nineteenth century, rather than simply advancements in scientific knowledge (235). However, more recent applications of infrastructural inversion (Anand 2012; Fennell 2011; Howe 2014) highlight "naturally occurring inversions," where "various exigencies make infrastructural operations abundantly visible to some people, or that induce new forms of practical engagement, tinkering, or sabotage" (Harvey et al. 4). Once a naturally occurring inversion is identified, it is then possible to identify key stakeholders, understand the functions of a given infrastructure, and for the purposes of this study, better locate where issues of access emerge from in terms of WIC's information infrastructure design.

Interviews

Utilizing infrastructural inversion as a means of resistant reading helped give me a lay of the land, understanding the intricacies of how the APL connects to other genres, how it's embedded in technological systems, and how those technological systems are maintained and designed. Interviews provided me the critical insight into understanding WIC participant experiences of the APL, as well as allowed me to "check" my information and analysis with WIC administration, staff, and vendors in order to 1) ensure I correctly characterized the

relationships I had researched independently; and 2) understand the perspective of the "systems designers and maintainers" (people who were involved, for example, in implementing a statewide EBT system transition, as well as people in roles like cashiers working to uphold the requirements of the WIC program). This interview data, contextualized within the data collected from infrastructural inversion, helped to answer my second research question: How do WIC participants navigate their grocery shopping experiences mediated by the APL?

I interviewed fourteen people total (ten WIC participants, two WIC staff/administrators, and two vendor representatives). Interviews were conducted from October 2020 to January 2021. I conducted each interview over the phone or FaceTime, depending on the participant's preference. Each interview lasted about thirty minutes and was semi-structured in nature, drawing from a set of standardized questions that often branched out into different topics. After each interview, I saved the audio file, assigned it a file name, and backed it up to a flash drive. I transcribed each interview audio file using oTranscribe, then uploaded the transcriptions to NVivo. Before I began transcription, after each interview I listened to the audio recording and wrote a brief memo with my initial takeaways from the interview. I noted similarities and differences compared to the interviews I had already conducted, wrote down any follow-up questions or clarifications I had, and wrote down key words and phrases the participant used. I used these memos as a way to reflect on the interview, as well as listen across the different participant experiences.

Using NVivo, I moved through two rounds of coding in order to generate preliminary themes across the interviews with WIC participants, staff, and vendor representatives. I approached analysis of the interview transcripts with in-vivo coding, which draws on words and phrases from the language of the raw data (Saldaña 2009, 74). In-vivo coding is a method of

coding based in grounded theory, where "data are examined for dimensions and properties, compared with similar phenomena, regrouped and reconceptualized until a provisional theory emerges inductively from the analysis … [in order to] examine conceptual relationships and to *generate theory*" (Neff 125, original emphasis). For this study, I wanted to prioritize and preserve the voices of the people I interviewed, so in-vivo coding enabled me to carefully attune to not only what they had to say, but also *how* they chose to describe their experiences related to the APL.

In order to conduct consistent in-vivo coding, I transcribed without making notes or applying codes along the way. My research interest was focused on issues of access, but I wasn't sure what those issues actually were for participants, nor how they affected their grocery shopping experiences. While I was focused broadly on issues of access, I wanted the way WIC participants describe their grocery shopping and benefit redemption to lead the way in terms of generating and applying codes, as well as generating themes from that first round of coding. I waited for all of the interviews to be fully transcribed, then read through each without applying themes, and wrote brief memos after each noting what stood out to me. From these memos, I noticed that WIC participants' frustration with the laborious process of grocery shopping stood out as a prominent commonality. I developed themes inductively out of the in-vivo coding from the interviews, then developed three profiles to complicate the themes, highlighting how three WIC participants' responses during their interviews represent shared approaches and strategies to secure and maintain access to using their WIC benefits as they grocery shopped, even while navigating unique APLs, technological systems, vendors, and material environments (including geographic location, neighborhoods, time constraints).

For example, one theme generated from this approach is “Enlisting Help,” which is one strategy WIC participants use to create a successful grocery shopping experience using their WIC benefits. This theme emerged from initial codes labeled “manager,” “getting help,” “getting backup,” “helpful,” and “authority.” I labeled WIC participants’ explanations of their interactions at the grocery store (primarily the cash register) with these initial codes because they described moments where they drew on ad hoc or consistent strategies to redeem their WIC benefits. From these initial codes, I identified enlisting help as a theme because it was a strategy many WIC participants used and accurately served as a description of WIC participants’ actions. In NVivo, this theme is labeled as a Node Theme, which gathered these instances of rearranging and coordinating people into one page.

After I had generated these themes and drafted the section of Chapter Three that explains these themes and provides examples, I contacted WIC participants and shared this stage of the research. I highlighted sections of the chapter where their interview data was used directly (e.g., direct quotes and summary), as well as where their interview data figured in more indirectly (for example, where their explanation about their frustration grocery shopping contributed to better understanding the affective consequences of engaging indirectly with the APL). I spoke with WIC participants at this stage of the research to ensure that I was accurately representing their experiences grocery shopping and participating in the WIC program, and also to confirm that they agreed with how I was generating conclusions and implications about those experiences. While not all participants provided feedback, participants did provide revisions for explanations where additional context was necessary, as well as corrections for details I had gotten wrong.

Participatory Critical Rhetoric

This study is motivated by a research commitment to not critique systems from a distance, but to carry out engaged research that has routes for meaningful interventions based on my findings. In order to understand the experiences of WIC participants within the program, it is necessary to understand and empathize with their interactions with the APL within the wider context of the textual, technological, and material relationships that affect benefit redemption at the grocery store. This approach necessitates a participatory critical rhetoric framework. Michael Middleton, Aaron Hess, Danielle Endres, and Samantha Senda-Cook describe participatory critical rhetoric as

> a set of research practices that bring qualitative methods of data collection … into the process of doing rhetorical criticism. Grounded in the intellectual tradition of critical rhetoric, participatory critical rhetoric affords critics the opportunity to stand with, for, and among the people whose rhetoric we study. As a participatory research praxis, participatory critical rhetoric reconsiders the relationships between critic, rhetor, text/context, and audience by placing the critic in direct contact with audiences and rhetors, inviting new perspectives on these complex rhetorical processes. It provides a means to account for the rhetoric of the everyday, to locate rhetoric in relationship to broader cultural discourses, and to open space for critics to analyze, participate with, and contribute to an emancipatory form of critique. (*xiv*)

Middleton et al.'s description of participatory critical rhetoric as a way to enact rhetorical criticism *and* engage with the text/context that is being critiqued resonates with Candice Rai and Caroline Gottschalk Druschke's discussion of "being there" in rhetorical fieldwork: "being there is fundamentally defined both through the presence of the rhetorician's body within a field site … and through the practice of inhabitation, observation, participation, and interaction that enable

researchers to gather data and/or effect change within the places of persuasion" (5). "Being there" in a traditional qualitative study is an embodied experience that necessitates careful preparation and in-the-moment decision making.

However, "being there" is complicated by the current challenges and limitations of doing research during a global pandemic from a distance. Instead of being physically present during data collection at a given site and finding meaningful routes for interactions and interventions that effect change, I am conducting research at what might be considered a distance, although I am interviewing WIC participants, staff, and vendors. However, this unique situation invites a different kind of participatory, critical stance and approach to research. From the beginning of this project, I've traced the changes to the WIC system, remaining present to the changes to the WIC website and other public-facing texts. Additionally, as someone within the community that WIC serves, I've participated in many similar actions of WIC participants in terms of childcare. While I was ultimately not eligible to participate in the WIC program, my efforts to try to enter the program were a kind of stymied participation. My research therefore exists in a kind of tension, where I am not immediately part of the system, nor am I studying the system completely at a distance.

There are several affordances and limitations to my positionality as a researcher for this project. On the one hand, my experiences struggling to determine my eligibility for WIC in the chaos of the pandemic allowed me to empathize to an extent with WIC participants who had the same experiences, as well as similar experiences of frustration navigating the program virtually. Additionally, I was a new mom, and shared the basic connection of parenthood with WIC participants—we shared similar emotions of worry, concern, and fear about taking care of our families during the pandemic when so little was known. However, I had never experienced the

regular practice of redeeming WIC benefits when grocery shopping, and the mental and physical stress it can bring. Additionally, because the WIC participants were from all different states, I wasn't familiar with the particularities of their cities, including their local grocery stores or the location of their WIC clinic.

I worked to establish reciprocity with WIC participants as part of this participatory approach. Reciprocity, as Katrina M. Powell and Pamela Takayoshi explain, "involves researchers and participants constructing roles for one another and negotiating those roles both within and outside the context of the research project" (401). While I shared drafts of the project at early and later stages of the projects with participants, this wasn't sufficient to establish reciprocity. Instead, reciprocity emerged from our conversations with one another on the phone, often after the interview had formally ended. For example, in our first phone call, Lourdes asked me to contribute to a GoFundMe she had started as a response to frustrating and fruitless conversations she had tried to start with the National WIC Association over Facebook. Her GoFundMe was intended to raise funds for her town to implement curbside for WIC participants at grocery stores. While I knew from my research how complicated implementing curbside for WIC could be, I contributed to the GoFundMe and checked in during our second interview to ask how the fundraising campaign was going. Lourdes wasn't interested in co-creating research questions, or analyzing the data together; she wanted me to support her cause because she wanted to solve this problem her own way. Just as I asked her to give time and information to my project, she wanted me to give financial support to hers.

On the other hand, Victoria talked to me during our first interview about how closely our questions aligned. Like Lourdes, she was also actively trying to problem-solve and uncover what was causing her so much trouble when grocery shopping. Victoria wanted to understand what

she described in her interviews as “the system” (see Chapter Three), which aligned with my desire to understand information infrastructure and what “structures” genres behind-the-scenes. Victoria’s questions about WIC shaped and led to the revision of my research questions to focus specifically on the role of the APL. Unlike Lourdes, Victoria wanted to know exactly how the APL works, and why, because it clarified her own experiences. She wanted to be able to ask cashiers and managers at the grocery store about the APL and viewed the information as an additional resource she could leverage to potentially make checkout easier.

Other WIC participants wanted me to advocate for their cause directly to the National WIC Association and to their local WIC clinics by calling and amplifying their complaints, asking for change, and requesting information. For example, Nina wanted me to call her local WIC clinic as a “concerned citizen” to request that participants get clearer guidance on determining how the requirements for participation within the program had changed because of COVID. Similarly, Brianna wanted me to call the National WIC Association on her behalf and ask that they work on a faster rollout of EBT for her state. Both Nina and Brianna, like Lourdes, wanted me to advocate and engage in concrete work to address the problems they’re facing, a role I didn’t expect to be placed in as the researcher. These requests drew on my privilege as a white, educated academic and the authority that I bring in conscious and unconscious ways into everyday interactions, like phone calls to outside organizations. Engaging in this advocacy work didn’t mean I was ameliorating disparities in privilege between me and WIC participants, but leveraging it in what I hoped would be helpful ways for their benefit.

Conclusion

This chapter outlined the triangulation of methods of this qualitative study (resistant reading, infrastructural inversion, interviews) and the critical participatory rhetoric approach. In addition, this chapter provided a rationale for finding and studying the APL as a key information infrastructure genre that shapes access for WIC participants. In the next chapter, I outline my findings from the infrastructural inversion (as a means of resistant reading) of the APL and interviews with WIC participants. I contextualize WIC participants' explanations of their grocery shopping experiences and the work they do to redeem their WIC benefits within the infrastructural inversion of the APL. Taken together, this interview data contextualized within the infrastructural inversion suggests that WIC participants, because of the behind-the-scenes influence of the APL on their grocery shopping, must generate ad hoc and long-term strategies for creating access and enabling successful and more stable benefit redemption.

Chapter Three: "It Must Be a System Thing:" Understanding the Role of the Approved Product List (APL) in Shaping the "When" of Access

Victoria, a mom of two, lives in Amherst, New York. She's been enrolled in WIC twice: first in 2014, then in 2019. Before the pandemic, and now, she has had a difficult time redeeming her WIC benefits at the grocery store. She has routine issues that are altogether mystifying to her. The visibility of her issues at the cash register reveal her status as a WIC participant, creating a negative and stressful grocery store experience:

> When you're Black you have this feeling like, the people in the line and the cashier, they're all judging you and they're thinking like, she's on this program. This must be food stamps or something. I've had people say like, "What are you doing? What are those? How are you paying for this food?" Like pointing it out to me saying, like, making it seem like I'm taking advantage of a system. It's a little dehumanizing. It's such a long process.
>
> And sometimes I feel like the sideshow at the store. You are told, hey, that's not the right brand. It's not the right size. This is everything that fits in this category but for some reason it's not being counted. This was .1 of an oz over, so now you're being charged for it. There's so many times where I have problems.
>
> No grocery trip is the same. It feels very much like a "powers-that-be" situation that dictates it. When you try to figure it out for yourself, like thinking 'I need these items, in these sizes,' then you go to the cashier and they don't work in the system, and you ask the cashier, and the cashier doesn't know. Then the cashier asks the manager, and the

> manager doesn't know. Well, let me try to call WIC. And then WIC doesn't know. *So it's like, it must be a system thing.*

To understand what is going on, it's necessary to understand what Victoria calls "the system." From her perspective, something shows up on the cash register screen that the cashier reads, prompting them to let her know whether or not her food items have been approved or rejected. Victoria's observation, that "it must be a system thing," highlights both the necessity and difficulty of studying infrastructure—that something about the way the cash register works, how it processes information, causes problems for Victoria, but the locus of the problem is not visible or immediately apparent. For Victoria, this "system" increases her visibility as a Black woman enrolled in a government aid program; it's not only dysfunctional, but also "dehumanizing."

Victoria's experience in WIC is situated within a long history of Black women and the politics and functioning of systemic racism within government welfare. Premilla Nadasan traces the beginning of the racialization and sexualization of welfare to the 1930's, highlighting the shift in welfare program participation consisting primarily of white women who were widowed or left by their husbands to also include single mothers and women of color:

> As increasing numbers of African American women joined the welfare rolls, politicians and policymakers instituted more punitive measures, including work requirements. These reform efforts were premised on a discourse falsely suggesting that most welfare recipients were black and unworthy of assistance. Welfare became a code word for race and came to symbolize the perceived problems within poor black communities … the image of the 'welfare queen' framed the political discourse about race, class, and gender in modern America. Welfare became a discursive stand-in in discussions about race and poverty. (53)

Discourse surrounding welfare became increasingly racialized and sexualized in the wake of New Deal politics that expanded the welfare state in response to the economic devastation of the Great Depression. As the "safety net" of welfare programs expanded, so too did the rising popularity of neoliberal policies that prized personal responsibility, the "discipline of the poor," and broadly, the privatization of public goods (Abramovitz 230). The Reagan administration tapped into and mobilized these neoliberal values through a policy platform grounded in welfare reform, including reducing food aid. The Reagan administration argued that "previous presidential administrations had made the social welfare system too elaborate and costly … a less intrusive government role in the economy would spur private investment and economic activity" (Maney 165). The rationale for making cuts to food aid programs was overtly situated in language that suggested limiting welfare provisions would result in less need for welfare in the first place.

Although the Reagan administration was successful in making significant budget cuts to most major food assistance programs, including food stamps (now known as SNAP), WIC was largely spared (Maney 153). However, the "Reaganization" of food assistance programs has had a lasting impact on the evolution of WIC's infrastructure. As Mason argues, WIC's program structures have evolved to

> [discipline] poor and working-class bodies to become frugal, productive, and responsible … produc[ing] subjects for whom 'health' is a moral commitment and a requirement of good motherhood … as young women, poor women, and women of color, WIC clients are routinely excluded from mainstream images of 'good' motherhood and citizenship … WIC policy and practice [facilitate] the neoliberal processes of responsibilization and empowerment. (72)

To understand "the system" and why Victoria, and other WIC participants, experience stymied action and stigmatization at the register, I argue that it's necessary to understand the information infrastructure of WIC, and in particular, the Approved Product List (APL)'s function as part of this infrastructure within this historical context of the connections between welfare reform, neoliberalism, and systemic racism.

An information infrastructure is "a shared, evolving, heterogenous installed base (which is also open and standardized) … a shared resource, or a foundation, for a community" (Hanseth 2010). WIC's information infrastructure is comprised of the Management Information System (MIS), a sprawling collection of technologies (hardware, software), texts (design documents like the Functional Requirements Document (FReD), the Universal Interface (UI) and the Approved Food List (APL)), and people (including WIC staff, administrators, vendors) that all contribute to the storage, maintenance, and sharing of information across the WIC organization. To make the system "work," it must share information with grocery stores that are WIC-approved vendors.

While there are several genres that make up the WIC MIS, this chapter focuses on the Approved Product List (APL) through an infrastructural lens because it is the central genre that mediates the grocery shopping experience for WIC participants like Victoria and influences their ability to redeem their WIC benefits during checkout. This chapter brings together the methodologies described in Chapter Two of "resistant reading" (Dryer) and "infrastructural inversion" (Star and Bowker) to understand the function of the Approved Product List (APL) within the WIC program, then contextualizes WIC participants' experiences grocery shopping within this mapping. Performing an infrastructural inversion (as a means of resistant reading) of the APL answers my first research question: How does the APL function infrastructurally within the WIC program? Bringing these findings into conversation with experiences of WIC

participants answers my second and third questions: How do WIC participants navigate their grocery shopping experiences mediated by the APL? And more broadly, how do genres, infrastructures, and access relate? I assert that better understanding genres like the APL from an infrastructural perspective provides a more in-depth understanding of how genres shape access, and how this access is not equitable. Specifically, I argue that when we observe and describe routinized and "behind-the-scenes" (Graham) actions of genres like the APL, we are describing the "when" of access—the spatiotemporally-bound moment where the local (individual action) and the global (infrastructure) are negotiated.

In the following section, I outline the infrastructural inversion of the APL as a means of resistant reading. Then, I trace two parallel changes to WIC information infrastructure: 1) the technological shift from a paper-based to Electronic Benefit Transfer (EBT) benefit redemption method and 2) the emergence and persistence of the novel coronavirus (COVID-19) pandemic. These parallel changes help reveal the function (and dysfunction) of the APL and its effects on WIC participants' grocery shopping. Specifically, the infrastructural inversion provides a thorough description and visualization of the APL's role as a "linking" genre between the WIC Management Information System (MIS) and new EBT system, a touchstone between key stakeholders, and a genre that mediates WIC participant and cashier interactions. The inversion is a thorough description of how the genre of the APL functions within the information infrastructure of WIC and relates to other texts, technologies, and people from these infrastructural perspectives.

This infrastructural inversion of the APL also highlights the ideological characteristics of the genre— the norms, beliefs, and values that the APL reflects and promotes. Beyond the pragmatic functions of the APL, the APL serves profit-driven private entities, acts as a

surveillance tool, drives inequities in terms of benefit redemption flexibility state to state, and, perhaps most importantly, places additional burdens on WIC participants to prove their items are WIC-eligible. These ideological functions are in line with neoliberal ideology, which "infuses discourses about individual morality, extending market logics to personal decision-making and emphasizing the moral value of rational, self-maximizing behavior (Foucault, 1982; Rose, 1990; from Mason, 2016). Engaging infrastructural inversion as a means of resistant reading locates the APL as a genre that bears directly on a WIC participant's grocery shopping experience, creating a need for WIC participants to respond to and negotiate with the APL even though it's not immediately present in their interactions with cashiers. I introduce WIC participants' grocery shopping experiences and the rhetorical strategies they've adopted for creating their "when" access moments within this infrastructural contextualization of the APL and the wider historicization of the neoliberal welfare reform. Taken together, this triangulation of methods shows the role of the APL in shaping WIC participants' social action (and inaction) and sheds necessary light on what Victoria calls "the system."

A Resistant Reading of the Approved Product List (APL)

Genres, when they work, help us get things done. As rhetorical, social actions, they mediate private intentions and social exigences (Miller, 1984), enabling our bodies to move through the world, make sense of our surroundings, and protect and promote our well-being. Genres are textual and extratextual, the spatiotemporal nexus of the human, technological, and material. They *happen*, at certain times, in certain places, for certain people. As Amy Devitt describes, genre "constructs and responds to recurring situation, becoming visible through perceived patterns in the syntactic, semantic, and pragmatic features of particular texts" (580).

As much as the "what" of a genre matters (the syntactic, semantic, and pragmatic features), the "when" of a genre, the perception of recurrence and familiarity and a patterned response, is just as important. Genres don't just exist, they *happen.*

When genres don't work, it is bewildering; we lose our orientation to what was once stable and known. Stabilized-for-now no longer (Schryer), they no longer support the intricate, tenuous relationships between people, texts, and technologies and the available social actions that emerge from those relationships. Organizations that serve a large population, like government welfare programs, work to increase access to underserved populations and rely on a complex web of genres to carry out this work. In the case of WIC, food security hangs in the balance; functional genres within WIC are in direct relationship to hunger, stress, and general well-being.

The APL is a genre that, at face-value, resists direct analysis (see Figure 1). It is mundane and highly technical—a sprawling Excel spreadsheet filled with brand names, item sizes, and categorical markers. Each WIC state agency maintains their own APL that documents the Universal Product Code (UPC), Item Description, Category Code, Category Description, and Subcategory Code (Figure 1) for all eligible food items available for purchase through approved vendors (grocery stores) in their state. APLs are stored in an online repository called the National Universal Product Code (NUPC) database, managed by the United States Department of Agriculture (USDA). While the NUPC can only be accessed by WIC state and federal administrators and staff, copies of APLs are publicly available on state WIC websites for vendors to reference. While its general purpose is to document eligible food items, its emergence and role within the WIC program is far more complex. This complexity, however, is largely obfuscated by its mundane and technical nature.

Missouri WIC Approved Product List

UPC	Item Description	Cat Code	Category Description	Subcat Code
000651003214	Ocean Mist Romaine Hearts 22 oz	19	FRUIT & VEGETABLE CASH VALUE BENEFIT	001
000651011004	Head Lettuce	19	FRUIT & VEGETABLE CASH VALUE BENEFIT	001
000651111025	Ocean Mist Farms Broccoli 1 Bunch	19	FRUIT & VEGETABLE CASH VALUE BENEFIT	001
000651111117	Cauliflower	19	FRUIT & VEGETABLE CASH VALUE BENEFIT	001
000651511016	Ocean Farms Celery 1 Stalk	19	FRUIT & VEGETABLE CASH VALUE BENEFIT	001
000651511030	Ocean Mist Farms Celery Hearts 1 Lb	19	FRUIT & VEGETABLE CASH VALUE BENEFIT	001
000651961026	Ocean Mist Organic Celery	19	FRUIT & VEGETABLE CASH VALUE BENEFIT	001
000651961040	Ocean Mist Organic Iceberg Lettuce	19	FRUIT & VEGETABLE CASH VALUE BENEFIT	001
011110001320	Kroger 100% Whole Wheat Roundtop Bread 16 oz	16	BREAD/WHOLE GRAINS	001
011110015747	Kroger Whole Wheat Tortilla 16 oz	16	BREAD/WHOLE GRAINS	008
011110016188	Kroger Creamy Peanut Butter 16 oz	06	LEGUMES	001
011110016195	Kroger Crunchy Peanut Butter 16 oz	06	LEGUMES	001
011110017918	Simple Truth FRZ Organic Cherry Berry Blend 2 Lbs	19	FRUIT & VEGETABLE CASH VALUE BENEFIT	002
011110017987	Kroger Shredded Whole Milk Mozzarella 8 oz	02	CHEESE/TOFU	001
011110018342	Kroger Grape Juice 64 oz	54	JUICE - 64 OZ	002
011110018359	Kroger White Grape Juice 64 oz	54	JUICE - 64 OZ	002
011110024985	Simple Truth Organic Slice Baby Bella Mushrooms8oz	19	FRUIT & VEGETABLE CASH VALUE BENEFIT	001
011110024992	Simple Truth Organic Baby Bella Mushrooms 16 oz	19	FRUIT & VEGETABLE CASH VALUE BENEFIT	001
011110026309	Dillons 100% Whole Wheat Roundtop Bread 16 oz	16	BREAD/WHOLE GRAINS	001
011110029065	Kroger Original Oats Instant Oatmeal 12 oz	05	BREAKFAST CEREAL	001
011110032522	Private Selection FRZ Sliced Strawberries 3 Lbs	19	FRUIT & VEGETABLE CASH VALUE BENEFIT	002
011110035523	Simple Truth Organic FRZ Leaf Spinach 12 oz	19	FRUIT & VEGETABLE CASH VALUE BENEFIT	002
011110035530	Simple Truth Organic FRZ Edamame 12 oz	19	FRUIT & VEGETABLE CASH VALUE BENEFIT	002
011110035547	Simple Truth FRZ Organic Broccoli Cuts 12 oz	19	FRUIT & VEGETABLE CASH VALUE BENEFIT	002
011110035554	Simple Truth FRZ Organic Mukimame 12 oz	19	FRUIT & VEGETABLE CASH VALUE BENEFIT	002
011110035561	Simple Truth FRZ Organic Corn 12 oz	19	FRUIT & VEGETABLE CASH VALUE BENEFIT	002

Figure 1: Excerpt of Missouri's Approved Product List (APL)

In the section below, I outline the findings from conducting an infrastructural inversion as a means of resistant reading on the APL to uncover how it functions in pragmatic and ideological ways for various stakeholders. The functions of the APL result in a stressful, and often laborious, grocery shopping experience for WIC participants in a hyper-visible environment that further marginalizes and surveils Black, disabled, and poor people. As detailed in Chapter Two, this method of resistant reading is an approach to studying genres that resist direct analysis and works to locate and intervene within the injustices that genres reflect and produce, including articulating the rationale for the design of a genre. For the purposes of this analysis, I leverage information scientists Susan Leigh Starr and Geoffrey Bowker's method of "infrastructural

inversion" as a means of resistant reading. I draw on Starr and Bowker's infrastructural inversion because it adds a necessary infrastructural perspective to Dryer's steps and accounts for the nature of the APL as a genre that is part of WIC's information infrastructure.

An Infrastructural Inversion of the Approved Food List (APL)

In order to understand the role of the APL in shaping access, it is necessary to understand how it is part of an information infrastructure that serves as the backdrop to social action within the WIC program. As discussed in Chapter Two, I engage infrastructural inversion as a means of resistant reading as a method that capitalizes on the phenomenon of naturally occurring inversions. This analysis focuses on two naturally occurring inversions within the WIC program: 1) the technological shift from a paper-based to EBT benefit redemption system; and 2) the emergence of the COVID-19 global pandemic. Both inversions bring the information infrastructure of WIC "to the surface" and enable observation and understanding of the role of a particular genre of the information infrastructure, the Approved Product List (APL), and its pragmatic and ideological functions.

In the following sections, I trace both naturally occurring inversions in order to contextualize WIC participants' experiences grocery shopping and redeeming their WIC benefits and to identify their "when" of access. The first inversion, the shift from a paper based to EBT benefit redemption method system, helps to reveal the texts, technologies, and people that make up the guidelines and practices of this revised information infrastructure, including new and extant stakeholders, the implementation and maintenance of the APL, and it's role in mediating WIC participants' grocery shopping experiences. The second inversion, the emergence and presence of the COVID-19 pandemic, reveals many of the assumptions "built into" this new

EBT system, with a particular focus on how the APL hyper-standardizes eligible food items and creates an even more time-intensive and inflexible grocery shopping experience, which is strained under the conditions introduced by the pandemic.

Both inversions provide, from an outsider's perspective, a rationale for the design of the APL, the changes and modifications present, and the ways the APL inscribes WIC participants within particular networks of social relations (namely, with cashiers and grocery store managers during checkout) that forestall change. Additionally, both inversions provide a contextualization for understanding the affective consequences of WIC participants' indirect interactions with the APL. It should be noted that the tracing of these naturally occurring inversions brings together primary and secondary research of WIC materials, including technical specifications, internal and external organization communications; as well as commentary on and analysis of those materials, drawn from interviews with WIC staff and administrators; as well as white papers, memos, and recommendation reports from WIC state agencies and federal offices. Thus, while these inversions are "naturally occurring" in that they are observable, the infrastructural inversion is accomplished through active analysis of these inversions.

Inversion 1: Technological Shift from Paper to EBT Benefit Redemption Method

In the past decade, the WIC program has been in the process of shifting from a paper-based to an Electronic Benefit Transfer (EBT) benefit redemption method, the way that WIC participants purchase food at the grocery store using their WIC benefits. The WIC program has identified "issues of access" as an issue they hope to remedy with this technological shift ("Making WIC Work Better"). WIC participation has been steadily declining in the last decade, and only about half of eligible women and caretakers participate (Badaracco). Research has

shown that facing stigma while grocery shopping, challenges navigating WIC requirements, and material "barriers to participation" (e.g. reliable transportation to a grocery store) are all central factors to lower participation in the program, as well as attrition once enrolled ("Making WIC Work Better"). The National WIC Association (NWA), the non-profit education arm and advocacy voice of the WIC program, identifies technological innovation as central to increasing enrollment and sustainable participation in the program. However, the NWA states that WIC's efforts to "progressively embed technology into all aspects of the program" must be met with "research … to better understand how WIC participants use technology and how new technologies designed to optimize WIC service delivery take into full consideration barriers to technology access" (Understanding How WIC Participants Use Technology"). This call for research highlights both the desire for the WIC program to serve participants effectively and the reality that technological innovations are designed and implemented in the program, often without a systematic understanding of how those innovations will affect the experiences of WIC participants as they go to doctor's appointments, complete nutrition grocery education, and grocery shop on an individual level.

A transition from a paper-based system to an EBT-based system changes the benefit delivery method for WIC, including how WIC agencies distribute benefits to WIC participants and monitor how those benefits are utilized. WIC's EBT-based system, eWIC, was mandated to be implemented in all 50 states, Indian Tribal organizations, and U.S. territories by the Healthy, Hunger-Free Kids (HFHA) Act of 2010, Public Law 111-296 under the Obama administration. The Act "mandates EBT by October 1, 2020; requires States to report annually to USDA on EBT implementation status"; and "provides technical changes to WIC EBT requirements, including requiring the secretary to establish national technical standards, minimum lane coverage

requirements, and limitations on the imposition of costs on vendors" (Summary of the Healthy, Hunger-Free Kids Act). Susan Blumenthal explains the primary functions of a paper-based system as consisting of multiple checks dispersed to an individual over the course of a month to redeem while grocery shopping:

> In a retail system, states authorize private businesses, referred to in federal WIC regulations as 'vendors,' to provide food benefits to program participants. In the paper-based system, WIC participants are given 'food instruments' that they exchange for their food benefit at authorized vendors. The instruments are either negotiable paper checks or vouchers that are redeemed by the WIC agency. WIC participants are typically given two to four paper checks or vouchers that list their food prescription. The food is spread out so that perishables can be purchased throughout the month, while dry goods can be purchased in a single trip to a vendor. There is no dollar value defined for these benefits. Participants are authorized to obtain specified units of approved food (e.g. one gallon of low-fat milk) and the vendor submits his/her request for payment in the amount of the shelf price for the item.

A paper-based system affords several benefits, including the ability to not rely on a digital system to correctly reflect a participant's current benefits. Instead, the benefits are listed directly on the paper check (see this example on pg. 34 of Washington's WIC Shopping Guide). Additionally, paper checks act as a built-in "pacing system" for redeeming food benefits. A gallon of milk, container of yogurt, dozen eggs, cheese, and beans are listed as eligible items that must be purchased together by a certain date (e.g. March 28th).

However, a paper-based system presents several challenges to participants, many of which have prompted the transition to an EBT-based system and eWIC cards (see an example

eWIC card here). These challenges include difficulty keeping track of checks (which if lost, typically cannot be replaced), issues checking out at the register, and a lack of standardization of approved food items at the state level. WIC participants have also reported stigmatization while grocery shopping, particularly during checkout at the cash register ("Making WIC Work Better"). WIC checks act as a physical marker that discloses a shopper's WIC status and require specific training to process. Additionally, the "pacing" of WIC checks often conflicts with a participant's actual food needs day-to-day and week-to-week; participants reported that they ended up with too much milk or yogurt in the fridge at times, but out of other items only available on the next check (personal interviews). Furthermore, WIC participants had to purchase all items allotted on a given WIC check, necessitating that a grocery store had every item in stock and findable on the shelves. For instance, if 1% milk was unavailable but all other items were, WIC shoppers were obligated to decide whether to purchase milk out of pocket, end their grocery trip and try another store, or go without. These constraints were identified by the National WIC Association (NWA) as critical "barriers" that limit benefit redemption within the program ("A Primer on WIC").

SNAP (formerly known as food stamps), implemented EBT in the late 1990s-early 2000s, which transferred government benefits from a federal account to the SNAP retailer ("SNAP to Health"). This transition from paper "food stamps" to EBT was fairly uncomplicated, since SNAP assigns a dollar amount to each participant monthly. WIC, however, faced (and continues to face) a daunting transition to EBT because of WIC's prescriptive structure. Since WIC participants receive an assigned food package "prescription," rather than a flat dollar amount, establishing the EBT relationships between WIC state agencies, local clinics, and vendors requires a complex revision of the program at the state level. In order for a state to

design, implement, and utilize an EBT system for benefit redemption, the relationships between the WIC state agency, clinics, and technological arrangements between WIC and grocery stores must change. One genre that configures these new relationships is the APL. In the next part of this section, I visualize and describe the APL as a "linking" genre between the MIS and EBT systems, a touchstone genre between stakeholders, and a mediating genre between WIC participants and cashiers during the checkout process at the grocery store.

The APL as a "linking" genre between the MIS and EBT systems

Transitioning a state's benefit redemption system from paper to EBT requires significant changes to the information infrastructure. Specifically, I found that the transition from paper to EBT requires revisions to a state's Management Information System (MIS), the configurations of hardware, software, and procedures that establish how information (data) is collected, stored, and shared by people within and beyond an organization (Figure 2). Because WIC operations depend on relationships between WIC state agencies, clinics, and vendors (grocery stores), it's necessary to have functionality between WIC's MIS and a vendor's point-of-sale (POS) system so that an exchange of goods can take place. In a paper-based system, paper checks served as both the food prescription (allotted monthly amounts of food, distributed across three-four checks) *and* the form of payment. Importantly, the food prescription was not tied specifically to a list of eligible food items; instead, when items were scanned by a cashier, they were compared against a national price average cap for specific items downloaded as a file on the POS system.

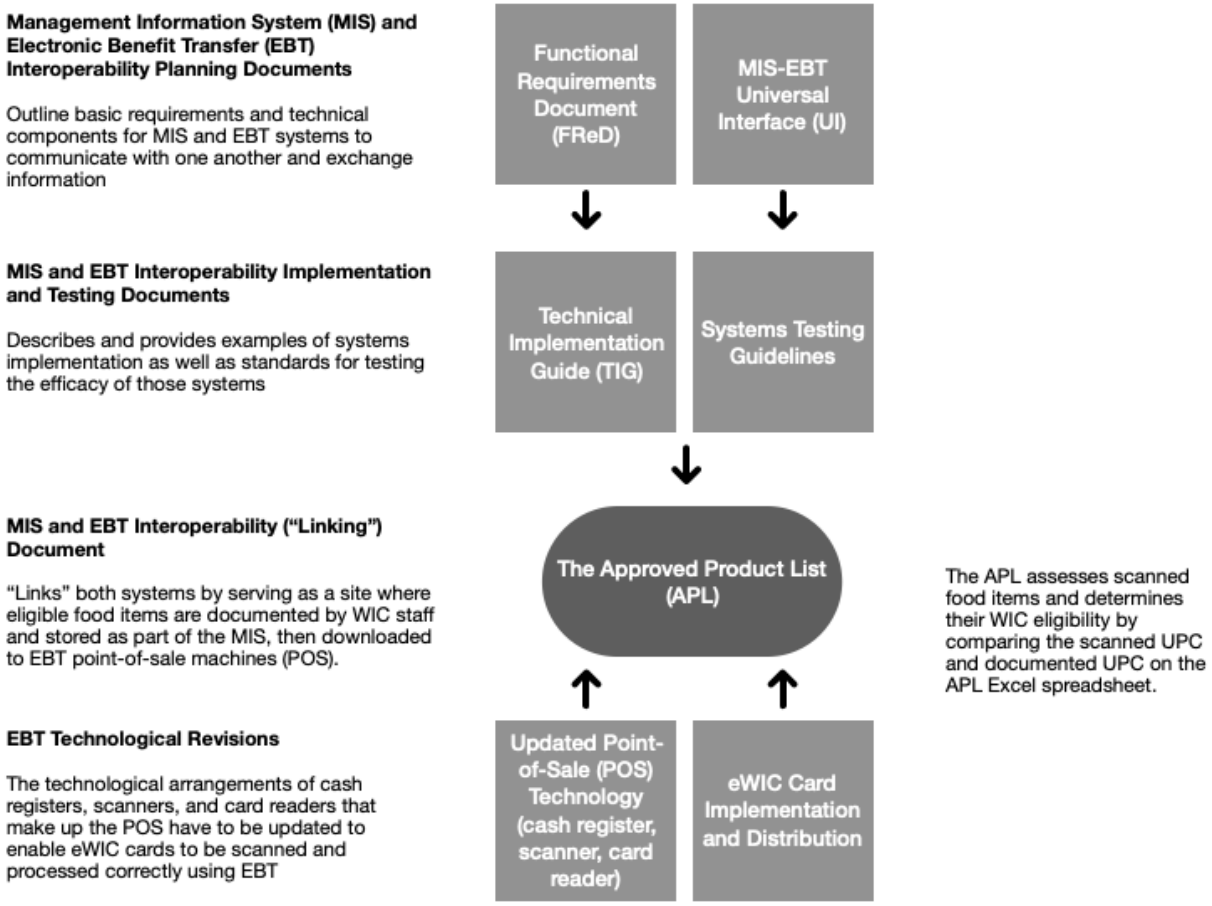

Figure 2: Management information system (MIS) and Electronic Benefit Transfer (EBT) with the APL as a linking genre.

In an EBT system, however, an eWIC card (a card that looks much like a debit card) functions as the form of payment, but the food prescription is linked to approved items documented on the APL. Instead of scanned food items being compared to a price average cap, they are compared directly to the APL. Thus, the APL is the central document that links the MIS to the EBT because it is a file maintained by WIC state agencies, stored in their MIS, and sent and downloaded to vendors' POS systems to make the EBT process functional.

The APL is part of WIC's updated MIS. The MIS performs several key actions by collecting, sharing, and storing information across the different organizational levels of the WIC program:

1. Determines eligibility of the WIC applicant, captures demographic data, and creates, assigns, and maintains benefit prescriptions
2. Issues and maintains WIC cards for the WIC household
3. Receives and approves or rejects WIC Vendor applications
4. Captures demographic data, establishes data collection, payment, and adjustment processes with every WIC vendor
5. **Establishes and maintains the Authorized Product List (APL) of food items for WIC purchase**

(WIC Universal MIS EBT Interface, my emphasis)

The need for each state to have an APL emerges from this requirement for MIS-EBT interoperability, the ability for both systems to "talk" to one another and share information. Since WIC operates using a prescription model (assigning participants a particular food package) instead of a dollar-based model (e.g., assigning participants a monthly stipend), there must be an information route for ensuring that WIC participants' assigned food packages align with their grocery store purchases. The USDA determined that creating their own MIS-EBT interoperability would be nearly impossible:

> When an EBT system was initially proposed, the USDA recognized that the costs of building EBT infrastructure from scratch would be prohibitive. A feasibility study estimated that the cost of implementing a national EBT would be $233 to $291 million, with terminal installation being the most expensive cost component. If, however, EBT

> could be integrated into existing commercial processing systems, so the USDA thought, costs would fall to an affordable level. Unfortunately, such integration proved more difficult than expected since EBT, unlike debit card systems, requires the flexibility to deliver multiple benefits subject to various government regulations. The complexities involved in developing such systems have attracted particular market actors and shaped the EBT procurement models and pricing plans. (Stegman et al. 11)

Because it is not feasible to implement a national EBT, states contract individually for "EBT procurement" with private companies, which modify a state's existing MIS and "add on" EBT functionality. Part of the EBT procurement process involves implementing an APL for each state, which requires coordination across key stakeholders. Several key infrastructural elements are at play in these revisions of the EBT and MIS, including changes to texts (like the APL), technologies (updating point-of-sale arrangements of cash registers, scanners, and PIN pads to work with eWIC cards), and key stakeholders' priorities (in terms of the APL design and how people engage with the EBT system more generally).

That the APL links the MIS and EBT systems is not particularly controversial in of itself, but it is important to remember that this infrastructural function is part of the privatization of public goods. Because the federal government contracts with private companies to implement MIS-EBT compatibility, the decision-making involved in situating the APL as the "link" extends directly from EBT procurement processes that are not necessarily concerned with beneficiary (WIC participant) experiences of that information infrastructure.

The APL as a touchstone genre between stakeholders

My analysis of WIC's shift from a paper based to EBT benefit redemption method reveals new and extant stakeholders in the program and the ways they influence the design and function of the APL. The APL reflects and upholds the values and priorities of multiple stakeholders within and outside of the WIC program, including the Institute of Medicine, the United States Department of Agriculture (USDA), the FDA (the Food and Drug Administration), food companies, WIC state agencies, WIC clinics, and vendors. The information documented in each state's APL Excel sheet showcases the outcome of medical, business, non-profit, and government input that informed the EBT design process as well as its overall functions (Figure 3).

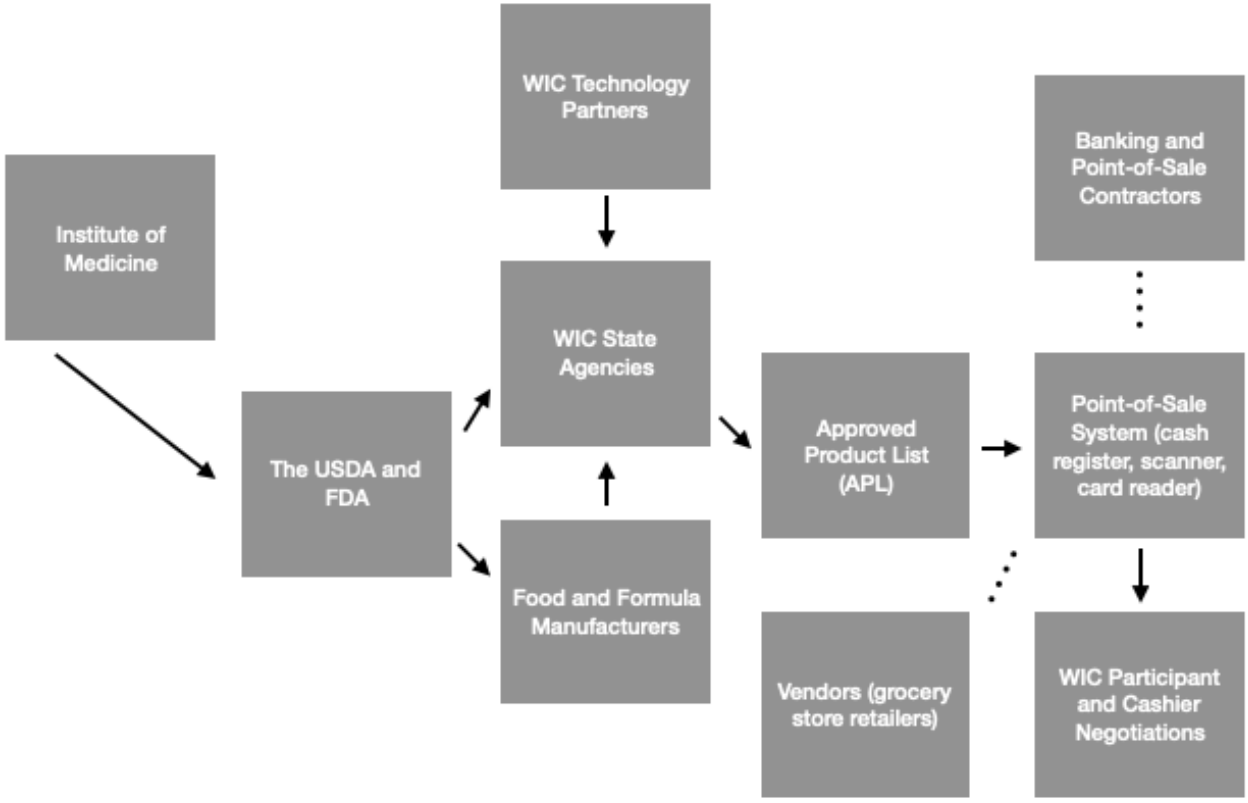

Figure 3: Map of the key stakeholders that engage the APL as a touchstone genre

The Key Stakeholders:

1) **The Institute of Medicine** is an independent, nonprofit entity operating under the National Academies of Science, Engineering, and Medicine. The IOM has paired with the WIC program several times in recent history to carry out studies and create recommendation reports for changes to WIC food packages. The Institute of Medicine takes into account the most recent Dietary Guidelines for Americans as they make recommendations for WIC food packages, as well as programmatic guidelines for making changes. WIC food packages are the assigned types and amounts of food allotted to a WIC participant monthly. Changes to WIC food packages must be "cost neutral, efficient for nationwide distribution and vendor checkout, non-burdensome to administration, and culturally suitable" ("Review of WIC Food Packages" 22). The Institute of Medicine recommendation reports serve as baseline resources for determining what nutritional components are necessary for the well-rounded diets of breastfeeding and non-breastfeeding women, as well as children and infants. This information directly informs USDA and FDA guidelines for food product eligibility, which all WIC-approved food items must align with in order to appear on the APL.
2) **The United States Department of Agriculture** and the **Food and Drug Administration** oversee the WIC program and determine the guidelines for food product eligibility. WIC state agencies are required to operate within these guidelines. The USDA primarily acts as the oversight body for the program but has some say with fresh produce in the program, including potatoes, which have been a contested food product within the program for years ("Review of WIC Food Packages" 26). The FDA creates guidelines for the majority of food products eligible in the program, including infant formulas, milks, cheeses, fruit and vegetable juices, shell eggs, canned/frozen fruits and vegetables, whole

wheat bread, canned fish, and peanut butter. They translate the nutritional recommendations generated by the Institute of Medicine recommendation reports into characteristics of food products. For example, breakfast cereal must be either ready-to-eat (e.g., corn flakes) or instant or regular hot cereals (e.g., oatmeal). A WIC breakfast cereal must also contain specific nutritional components (e.g., a minimum of 28 milligrams of iron per 100 grams of dry cereal). WIC state agencies reference these guidelines as part of their decision-making processes for what they approve for their APL.

3) **Food and formula manufacturers** are also key stakeholders of the APL. While food and formula manufacturers do not make money in a direct way by establishing their products as WIC-eligible, there are long-term financial incentives. For food manufacturers, like General Mills and other "big brands," securing WIC eligibility for food products has several benefits, including increased brand recognition and increased sales within and outside of the WIC program. Food manufacturers have a vested interested in securing WIC-eligibility, too, as a way to shape taste preferences and secure lifelong customers through brand loyalty.

There is a competitive bidding process for formula manufacturers to become WIC-approved. Each state contracts with a formula manufacturer, and as part of this contract, the WIC state agency receives manufacturer rebates. A 2011 USDA report found that "the market share of the manufacturer of the new WIC contract brand increased by an average 74 percentage points after winning the contract. Most of this increase was a direct effect of WIC recipients switching to the new brand … however, the sales of

formula purchased outside of the program also increased" (Oliveira et al. *iiii*). Thus, formula manufacturers also have financial interest in winning state contracts.

4) **WIC Technology Partners**, including private companies that contract with WIC to design, plan, and implement MIS and EBT compatibility, work with WIC state agencies to institute their APL. Technology partners provide project management services to WIC as they transition from a paper based to EBT benefit redemption methods by revising the existing information infrastructure. They have less of a vested interest in what food items are approved to end up on the APL; however, they are directly involved in designing the information infrastructure that establishes the general function of the APL.
5) **Banking contractors** and **point-of-sale contractors**, like JP Morgan and its subsidiary, Chase Commerce Solutions, are EBT stakeholders and therefore, like WIC technology partners, invested in the general technological shift that creates the need for the APL. Because an EBT system utilizes eWIC cards for the exchange of goods, vendors must contract with bank and point-of-sale technology contractors so that they have not only the proper equipment at checkout, but functional equipment that communicates with a bank to process the transactions using this equipment. Often, bank and point-of-sale technology contractors are integrated services as part of a large conglomerate, like JP Morgan, but they can be distinct private companies.
6) **WIC State Agencies** exert a great deal of control over their APL and have decision-making processes to determine what will be WIC-eligible in the state. WIC state agencies are also responsible for maintaining and updating their APL. WIC staff and administrators can refer to the USDA's National Universal Product Code (NUPC) database, a "centralized repository for information about WIC-approved food products"

("USDA Acts on Feedback, Requests Public Input on the National Universal Product Code (NUPC) Database"). The NUPC also stores copies of each state's APL and the USDA confers with states using the NUPC. State agencies consider the factors like nutrient profile, price, product availability in a state, container size, WIC participant preference, and program management costs when deciding whether to approve a food product ("Information for Food Manufacturers"). A state agency is not required to approve a food product even if it fulfills all FDA and USDA requirements.

As Jovi, a WIC Director interviewed for this study, explains, state agencies also have the discretion to determine the flexibility of the APL. For example, a standard food package might include 32 oz. of whole wheat grains per month (personal interview). One state may approve a wide range of sizes and food types in order to allow WIC participants to "mix and match" to redeem this benefit. They may be able to purchase 8 oz. bread, 16 oz. bread, and 32 oz. bread, as well as 16 oz. tortillas. Another state, however, may only approve 16 oz. bread. This level of "strictness" affects how restrictive the APL is in relation to a participants' food package.

7) **Vendors** (grocery stores) are also APL stakeholders because the APL determines their business processes, including product labeling, shelving, and establishing protocols for processing transactions. Every morning, vendors are responsible for "pulling down" the nightly APL file sent through WIC's MIS, so they have an up-to-date APL downloaded to each POS system. Vendors need a reasonable file size for the APL that doesn't put undue strain on their POS technology, as well as an accurate APL that will promote efficient transactions at the register. Vendors are responsible for labeling WIC products

on the shelves, so they rely on updated APLs to be able to make changes to signage when products are added or removed from the list.

8) **Cashiers** and **WIC participants** are typically not directly involved in modifying or interacting with the APL directly. However, they are both stakeholder groups because they interact directly with EBT technology. When cashiers process a WIC transaction, they move through a standardized process prompted by the point-of-sale machine interfaces, including asking WIC participants to scan their card and pay for any items that are not WIC-approved. WIC participants, often relying on their paper or digital Allowable Foods List (the compendium of WIC eligible foods available in a given state), as well as their assigned food package guidelines, bring their items to the checkout line, sort the WIC items out from non-WIC items, run their card, and find out what "goes through." Both cashiers and WIC participants experience the APL only insofar as the messages that appear on the cash register interfaces, notifying them of approval or rejection. Through the WICShopper app, WIC participants can submit product information for an item that isn't scanning correctly that they believe to be WIC eligible, presumably to be assessed by WIC state agencies as they maintain their APLs.

The technological shift from a paper based to EBT benefit redemption system, including the design and implementation of the APL, is an inversion that showcases not only the "installed base" of the existing MIS, but how the revisions necessary to implement EBT involve, to varying degrees, input from various stakeholders. This shift also contextualizes why the interaction between cashiers and WIC participants can be so mystifying—behind the message on the cash register screen is a complex network of relationships between stakeholders that engage with the APL and shape access.

The APL as a mediating genre during checkout

In an EBT system, the APL is the site where validation or rejection occurs during WIC benefit redemption. If a food item is documented on the APL, it will be validated as a WIC-eligible purchase, but if it is absent, it will be rejected. There are two primary kinds of eWIC systems, offline and online, both of which use the APL as a means of validating purchases:

> In offline eWIC, the transaction is processed by an in-store system. A food prescription resides on a participant's chip card. The in-store system confirms that the card is valid and verifies the PIN. The WIC products presented for purchase are validated against the APL and the WIC benefit food balance stored on the [eWIC] card. When the transaction is accepted, the card balance is accepted, and the store system captures the balance for printing or display. The vendor's claims for the day are uploaded to the eWIC host in a batch file (multiple transactions in one file) overnight. The vendor's claims are processed the next day and an ACH deposit to the vendor's bank account is initiated.
>
> Transactions in an online eWIC system, on the other hand, are processed at the eWIC host (the central computer that manages all transactions). An in-store system initiates the process by uploading the card number and PIN for validation and then accesses the account. The [assigned food package] is maintained at the [WIC clinic] and the [eWIC] card only has the account identification information. The in-store system validates the WIC products presented for purchase against the APL and benefit account balance. At the conclusion of the transaction, the eWIC host updates the benefit account and initiates an ACH deposit to the vendor's bank (Blumenthal 37)

Regardless of whether a state uses an online or offline EBT system, the APL plays an important role as the point of validation or rejection (Figure 4).

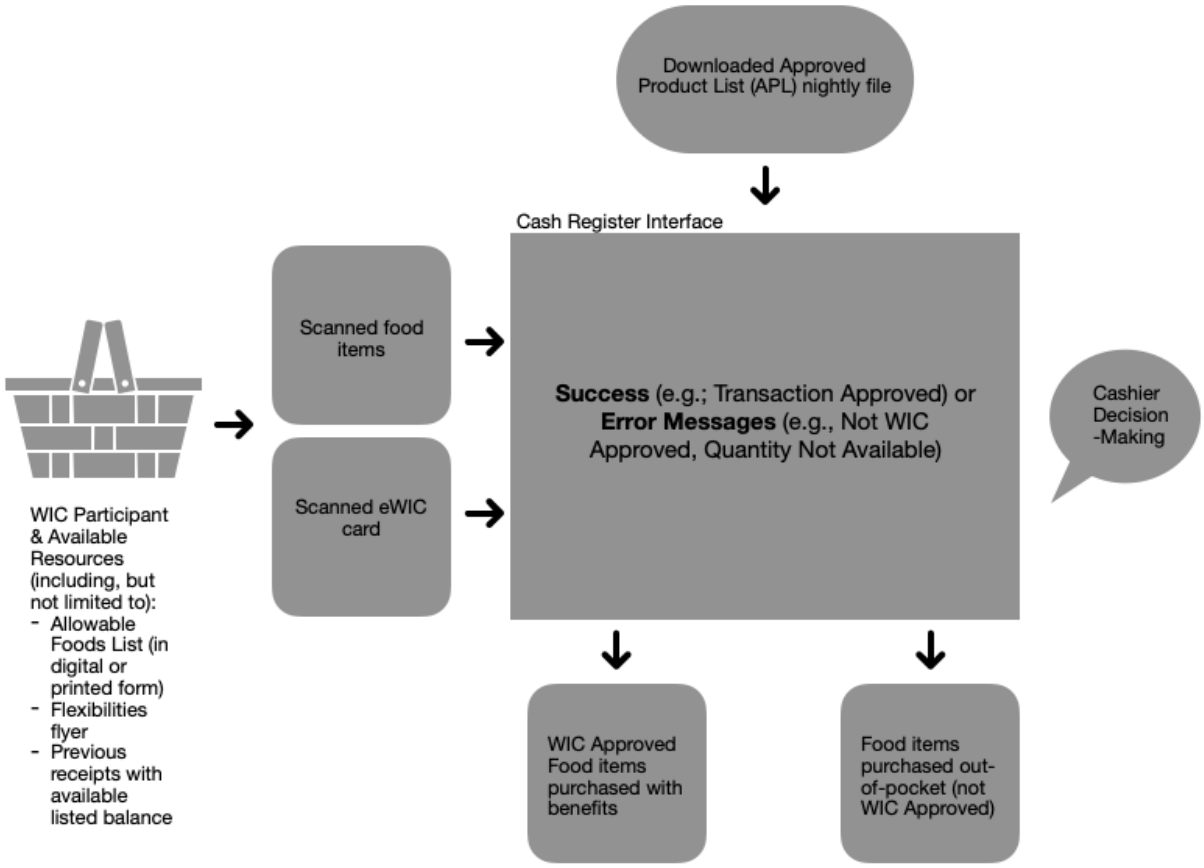

Figure 4: The APL at the point-of-sale.

When a WIC participant approaches the cash register with their food items, they may have their Allowable Foods List (in digital or printed form), previous receipts with their available listed balance, and, during the pandemic, may also bring along a flexibilities flyer that outlines eligible substitutions for certain food items. They place their items on the conveyer belt, sorting out WIC items from items they intend to purchase out of pocket. They swipe their eWIC card and enter their PIN while the cashier scans the items' Universal Product Code (UPC). When

an item is scanned, it is assessed by the EBT system in two ways. First, the item is compared to the available benefit balance. For example, if a WIC participant has already purchased four gallons of 1% milk and tries to purchase another, the EBT system will flag this item as ineligible. Second, the item is compared to the APL. If a participant tries to purchase a gallon of 1% milk that isn't documented on the store's current version of the APL, for instance, that milk will be also be determined to be ineligible. Critically, a store's current APL isn't necessarily the most up-to-date APL. Stores must manually "pull down" (download) the nightly file of the APL sent from the WIC state agency to their cash registers.

Once the APL "filters" WIC-eligible items from ineligible items, the interaction between WIC participants and cashiers may shift to negotiating why items were rejected. Importantly, these negotiations often center around the error messages displayed by the cash register interface. When the cash register shows a "Not WIC-Approved" message, this message is "sent," in a manner of speaking, by the APL alerting the cashier that there is no match to a particular item's UPC. From that message, cashiers have decisions to make: whether to call over a manager and ask for an override, to try scanning the items again, or recommending that WIC participants contact their local clinic for help. WIC participants also have decisions to make: whether to challenge the cashier, appeal to their resources (e.g. Allowable Foods List, flexibilities flyer), pay for items out of pocket, or leave the grocery store without those items.

Understanding how the shift from paper to EBT creates a mediated interaction between cashiers and WIC participants at the register through the function of the APL helps clarify why Victoria faces challenges with "the system" at the cash register. It also clarifies how the APL functions at the point-of-sale, and centrally influences participants' benefit redemption, even though it's completely out of sight and unavailable to be interacted with directly. Even without

direct knowledge of the presence of the APL, WIC participants must choose how and when to advocate for themselves in the hyper-visible environment of checkout, where cashiers and other customers draw their attention to the nature of a participant's payment method. That WIC participants shoulder functionally all responsibility to choose the correct items, yet have little agency to challenge item eligibility at the point of sale, highlights that the shift from paper to EBT is in part a shift to a WIC grocery shopping experience that assumes this personal responsibility is never at odds with the MIS-EBT interoperability (namely, the APL mediation of the cash register). The shift to EBT seems to hold WIC participants to an impossible standard—to be personally responsible in their food item selection, following the rules exactly in order to optimize their benefit redemption, *and* to submit to the authority of the APL without question, which often results in limited benefit redemption.

Inversion 2: The COVID-19 pandemic

The COVID-19 crisis is an inversion of WIC's information infrastructure that reveals two sets of problems: 1) problems that are "exclusive" to COVID and 2) problems that already existed, to an extent, within WIC's information infrastructure prior to the crisis that are exacerbated by the pandemic. This inversion showcases how the hyper-standardization of eligible WIC food items, accomplished by the APL and wider implementation of EBT, was at a basic level not designed to make WIC grocery shopping an easier process. Although EBT benefit redemption enables a more discreet checkout process (in theory), the process is time-intensive, inflexible, and often challenging. This difficult process was highlighted not only by unexpected supply chain issues, but also by a radically altered grocery shopping environment introduced by the pandemic. In what follows, I argue that the pandemic introduces new problems, as well as

exacerbates existing problems. I draw from interview data from WIC staff and vendors, in part because the ongoing effects of the pandemic are ongoing and have not yet been documented or studied by the WIC organization.

As the October 20th, 2020 deadline approached for all states to implement their EBT systems, many were still in planning, pilot program, and early rollout stages. By March 2020, less than half of state agencies had fully implemented EBT ("Modernizing and Streamlining WIC"). With less than eight months away from the deadline, the emergence of the novel coronavirus (also known as "COVID-19") in the United States and consequent evolution into an ongoing pandemic sparked a crisis for the WIC program's technological innovations. Particularly in the first two months of the pandemic, states that were still in implementation, pilot, and rollout stages had to determine whether to continue with their pre-pandemic timelines, adjust their deadlines, or pause altogether ("Exploring Technology Solutions for WIC During COVID Outbreak"). The normal conditions for WIC staff, including information technology specialists, EBT project managers, and APL managers, had also changed drastically: WIC staff were asked to work from home, WIC clinics were closed indefinitely, and the ability to meet and collaborate was limited to digital interactions over Zoom or conference call. For newly implemented EBT systems, as well as relatively established systems, the pandemic brought on a "test phase" that revealed (and continues to reveal) who "the system" serves and who it ignores.

The pandemic introduced several key pressures to EBT implementation that evidenced how the APL functions in times of crisis as well as stability. First, panicked and concerned shoppers cleared grocery store shelves, purchasing in bulk items like toilet paper and cleaning products, as well as food items like canned beans, bread, milk, and baby formula, which are essential WIC items. This "run" on the grocery stores made it difficult for some WIC shoppers to

find eligible items in the store to redeem their benefits. Because the APL increases standardization of eligible food items, states that had implemented EBT were faced with a new system in which the only way to diversify WIC-eligible products relied on the time-intensive-process of approving individual food items to appear on the APL. Additionally, initially it was unclear whether the pandemic would last weeks or months (let alone years). The question of time created a conundrum for WIC state agencies – were they implementing short-term solutions and "workarounds" to their EBT setups, or were they planning for longer-term changes that could end up becoming permanent?

As the pandemic wore (wears) on, the USDA created a series of WIC COVID-19 "flexibilities" that have been approved for the duration of the public health emergency. These flexibilities apply to the full spectrum of WIC activities, from implementing digital enrollment, telehealth visits, remote issuance of benefits, food package flexibility, and options for food package distribution. These flexibilities are essentially a workaround of WIC's current information infrastructure that was designed for "in-person" interactions. The increased flexibility of food packages is intended to "permit appropriate substitutes" for the types and amounts of certain WIC-prescribed foods if their availability is limited. For example, some states have been approved to allow participants to:

- Substitute milk of any available fat content if prescribed varieties are not available
- Substitute authorized whole grains in package sizes up to 24 oz. when 16 oz. packages are not available
- Substitute 18-count cartons of eggs when 12-count cartons are unavailable

("WIC- Food Package Substitution Waiver")

These waivers are intended to expand what is eligible within the WIC program without having to make direct changes to the APL; importantly, these items are only eligible *when eligible items are unavailable*. The flyers are meant to override the dictates of the APL: for example, if 12-count cartons of eggs are unavailable, 18-count cartons become eligible, even though when scanned they will be rejected as ineligible. This flexibility, at the same time that it promotes an increased range of food item eligibility, also places additional strain on the interaction between cashiers and WIC participants during checkout. As Jovi, a WIC Director in Montana, explains, this flexibility "positions the cashier as the police" who determine whether or not items are out of stock, and therefore if the alternative is eligible (personal interview). Cashiers must decide whether or not they're going to accept the waiver as authoritative *over* the authority of the APL. These waivers work to solve a problem (limited stock of WIC-eligible items), and in doing so, reveal that the APL was designed under the assumption that WIC-eligible items would always be in stock and that substitutions would ultimately not be necessary for WIC participants to fully redeem their benefits.

The pandemic also introduced, or rather, emphasized an existing need for many WIC participants—to be able to get curbside or delivery groceries—that is made incredibly difficult in part because of the role of the APL in the wider EBT system. The Center for Disease Control, in their "Running Essential Errands," guidelines, posted the following information in April:

Order online or use curbside pickup

- If possible, limit visiting the grocery store, or other stores selling household essentials, in person. In general, the more closely you interact with others and the longer that interaction, the higher the risk of COVID-19 spread.

- Order groceries or other items online for home delivery or curbside pickup (if possible) or check with your local grocery store to see if pre-order or drive-up options are available.

These guidelines, based in the knowledge about the virus and transmission at the time, encourage shoppers to spend as little time in a grocery store as possible. For most WIC shoppers, however, there is simply no other way to grocery shop. Because WIC EBT technology (hardware and software) is distinct from a grocery store's "standard" point-of-sale (POS) system, it isn't compatible with mobile processing technologies like Square Readers or standard scanners. Instead, many EBT POS systems utilize separate pin pads and/or card readers for processing WIC transactions because of the available technologies provided to them through their contractors. WIC transactions, through these technologies, must take place during the exchange of goods. Therefore, most WIC participants cannot use a grocery store's mobile phone application to purchase WIC items for curbside or delivery, both because it would authorize an exchange of goods without the goods (food items) present, and because the technology prohibits such a transaction in the first place, in part because of the APL's "filtering" work to sort WIC eligible items from ineligible items as a downloaded file to the point-of-sale system that processes WIC transactions.

Creating a means of WIC participants redeeming benefits online, therefore, remains elusive. Even before the beginning of the pandemic, WIC has established work groups to explore the technological innovations needed to be able to allow benefit redemption on sites like Walmart or Amazon. With SNAP, an agreement must be set up with retailers to accept SNAP EBT as a payment method. With WIC, however, states approve specific vendors within state lines to be WIC-approved grocery stores. Because of these local partnerships, WIC transactions

are bounded within a given state. As Jovi explains, when someone purchases something on Walmart's online site, they are not purchasing the item from a store, but from a warehouse embedded in Walmart's supply chain distribution system. Since WIC guidelines are state-specific, and all eligible items are localized within each state's APL, this presents a significant challenge for standardizing online ordering.

Because WIC participants in most states and territories are not able to get groceries curbside or by delivery, most people still grocery shop in person. The CDC recommended the following practices for safe grocery shopping during the pandemic:

Protect yourself while shopping

- Wear a mask in public settings and when around people who don't live in your household, especially when social distancing is difficult.
- When you do have to visit in person, go during hours when fewer people will be there
- If you are at higher risk for severe illness, find out if the store has special hours for people at higher risk. If they do, try to shop during those hours.
- If possible, use touchless payment. If you must handle money, a card, or use a keypad, use hand sanitizer right after paying.

These recommendations for grocery shopping implicitly recommend that people grocery shop with as little contact as possible, for as little time as possible. For WIC participants, who either work away from home or in the home, this presents a significant challenge. Grocery shopping using WIC is often not a quick process. It requires careful attention not only to what is in stock, but what is currently eligible. Participants have to find the right items, ensure those items are still eligible (e.g. the oz amount hasn't changed, the box hasn't been rebranded), make sure those eligible items align with their available benefit balance, separate out those items from non-WIC

items at the checkout line, and navigate any challenges at the point of sale that arise. These careful practices are necessary, in part, because of the APL. In a paper-based system, WIC participants had to generally find the right items, but with the implementation of EBT, the APL flags any item not included on the Excel spreadsheet as ineligible. If WIC participants are to fully redeem their benefits, it is crucial they "get it right" before they get to the register. This process is largely incompatible with the efficient, flexible grocery shopping strategies recommended by the CDC.

These inversions of WIC's information infrastructure evidence not only how EBT was designed and implemented for WIC, but why, and for what benefit, as well as reveal the function and dysfunction of the APL genre and its effects on WIC participants' access. In the following section, I summarize how the APL and surrounding EBT system function pragmatically and ideologically in order to contextualize WIC participants' experiences grocery shopping later on in the chapter. These two inversions of the APL (the technological shift from paper to EBT and the pandemic) point to how WIC participants, as well as staff, administrators, and vendors, are inscribed in particular relations. These relations are pragmatic (they help "get things done") and ideological (they establish and reflect particular beliefs and values, which shape power dynamics, influence who has agency, and ultimately, influence access).

The Ideological Functions of the APL

The shift from paper-based checks to EBT has been generally characterized as a technological innovation that works to "streamline" and "improve" the WIC program overall. In the congressional report summarizing the Healthy, Hunger-Free Kids Act, Blanche L. Lincoln, Chairman of the Committee on Agriculture, Nutrition, and Forestry states:

> Updating technology in the WIC program will allow State WIC staff at all levels to perform operations more effectively and efficiently, increasing accountability and streamlining program monitoring and business practices through electronic solutions. At the clinic level it will enhance client services by improving client efficiencies. EBT will improve access to prescribed WIC foods by allowing the participant to shop for benefits when they want and in the amounts they wish to purchase. EBT will also simplify the retail point-of-sale transaction and will reduce participant stigma and improve the shopping experience. WIC benefit redemption and payment for WIC transactions will be vastly improved for retailers using EBT.

Lincoln's description of EBT technology exemplifies an understanding of access and technology as a one-to-one relationship. In this understanding, EBT technology makes things better for everyone: WIC staff can more easily (and quickly) carry out their work, WIC participants have improved access to food and an overall shopping experience, and WIC retailers benefit from an easier WIC transaction process. Everyone wins. This technological innovation, as described by Lincoln, is a way to address and resolve the challenges of program stakeholders and participants in one sweep.

Lincoln's description also mentions improved "program monitoring and business practices," signaling another focus on the technological shift – to enable the ability for WIC to implement increased surveillance and data collection. Although not immediately apparent, these priorities are connected not only to WIC state agencies and federal oversight, but to private stakeholders, including financial entities and outsourcing companies. In order for an EBT system to work, there must be an overhaul of each state's existing information management system (MIS), part of the information infrastructure that enables WIC clinics to store, share, and organize information.

In addition to a change to the MIS, there are a host of technical documents that must be composed to ensure interoperability between the MIS and the EBT system. This work is contracted out to private companies, like Maximus Inc., that design, test, and implement MIS-EBT compatible systems ("Plan, procure, and implement successful WIC EBT solutions"). Within the technical parameters companies like Maximus set for MIS-EBT compatible systems, WIC state agencies have some decision-making power to establish particular technical specifications based on the assessed needs of their WIC participant population.

And finally, in order for an EBT system to function correctly, and in particular the eWIC card, there must be a contract established with a bank to serve as the financial entity that oversees benefit authorization between the WIC clinic MIS and WIC-approved retailer. eWIC transactions are distinct from "standard" cash/credit/debit/check retail transactions but still constitute a transfer of funds. Like outsourcing companies like Maximus, there is a competitive bidding process to acquire state EBT contracts ("Approval for WIC EBT Systems"). JP Morgan is a central financial stakeholder in the WIC program and currently holds EBT contracts with over thirty states. In their 2009 recommendation report, "WIC EBT: The Future is Now," JP Morgan Executive Director of Public Affairs for Treasury Services Brian Kibble-Smith writes, "EBT would take human error out of the distribution process and provide a wealth of tools and information to clinicians and policy makers alike in a technologically rich, 'closed loop,' environment" (13). Like Lincoln, Kibble-Smith asserts a one-to-one relationship between technology and access where a transition from paper-based to EBT benefit redemption methods resolves existing issues of access. Additionally, he asserts that EBT technology creates a fool-proof and streamlined system not prone to human error or intervention.

The APL serves a pragmatic role within WIC's benefit redemption system by linking the MIS to the EBT and creating interoperability. However, the infrastructural inversion as a resistant reading of the APL also highlights several ideological functions:

1) Further privileges "big brand" food manufacturer food item for WIC approval

The hyper-standardization of WIC-eligible food items documented in the APL further privileges corporate ("big brand") food manufacturers like General Mills and Kellogg. Because the APL specifies the UPC and product categorization of discrete food items, it makes it even more difficult for local brands to have their food items approved, since manufacturers must confirm that the food items are low-cost and widely available in major chain grocery stores.

2) Increases surveillance by USDA, FDA, and private stakeholders

The creation and implementation of the APL as part of the EBT system establishes infrastructure for collecting benefit redemption data in great detail. Because the APL outlines specific food items by UPC and categorization, it becomes possible for the USDA, FDA, and private stakeholders to collect data on how items are purchased, by whom, and when. These purchasing patterns serve several useful functions for WIC (e.g., identifying low redemption of whole wheat pasta among a specific demographic profile, for example). However, private EBT contractors highlight the ability for their system implementation to better identify "benefit fraud," an alluring prospect which incentivizes a contract. As Stegman et al. explain, "EBT technology has the potential to improve the detection of food stamp fraud. Electronic transactions generate digital records which investigators … can mine for patterns that indicate illegal activity" (16). Although it's been determined that WIC has relatively low rates of benefit fraud (Chaudhari and Shaffer 3), EBT contractors highlight the ability to

increase surveillance as a feature that will strengthen WIC operations. In short, the idea that implementing EBT will crack down on benefit fraud is profitable. EBT contractors' promises to crack down on benefit fraud are in line with neoliberal welfare reform, rooted in a basic distrust that women using welfare are "taking advantage" of the system and thereby not adopting market logics of efficiency and personal responsibility in their own lives. Importantly, this distrust stemmed from the popularization of the caricature of the "welfare queen;" a Black woman living beyond her means because of the financial assistance gained from enrolling in welfare programs (Nadasen 58). Thus, while there is little statistical evidence that women and caretakers enrolled in WIC are engaged in fraudulent uses of the program, an underlying fear of and reaction to fraud is built into the MIS-EBT information infrastructure, in part through the way the APL hyper-standardizes eligibility and creates such a high-stakes checkout experience. And while all women and caretakers enrolled in WIC experience this information infrastructure, the stereotype of the "welfare queen" and a basic question of whether women of color are worthy or deserve welfare are significant historical factors that contribute to this infrastructural design.

3) Sets the "tone" of a state's benefit redemption

The APL creates inequities across state lines in terms of the range of food items that are WIC eligible and available. These inequities were exposed, and exacerbated, as the pandemic emerged. Some states had established "strict" eligibility (for example, *only* 16 oz. wheat bread, versus 8 oz., 16 oz., and 32 oz. wheat bread) and experienced increased food shortages and an immediate need for the "flexibilities" that took months to implement in some locations. States with more flexible and expansive offerings experienced fewer issues, but still ran into problems because of the hyper-standardization of eligible food items.

4) Strains the available technological "support" of POS systems

The size of an APL file is critical. While it would be ideal for an APL to contain *all* Universal Product Codes (UPC) from the compendium of UPC stored as part of the National Universal Product Code database, as well as the UPC for food products exclusive to specific states, the "weight" of this file size would not be compatible with grocery store technology. In fact, APLs that are too large create problems—they crash POS systems, slow down processors, and create a prolonged technological strain. Thus, it is necessary for state agencies to maintain a fragile balance between documenting eligible food items, removing outdated items, and trying to establish a representative, up-to-date APL. However, it is ultimately the responsibility of manufacturers to submit information when a food item changes (USDA Eligibility Requirements), creating the potential for communicative gaps and misleading information contained in the APL. For example, after investigating a series of complaints from WIC participants about benefit redemption, one state found that over half of their WIC-approved grocery stores had not uploaded an updated version of the APL in over three years because of "technical issues" concerning file size and the stores' point-of-sale system (Jovi, personal interview).

These ideological functions of the APL complicate the narrative that implementing the APL, as well as the EBT system in general, eliminates the problems generated by a paper-based system. With the implementation of EBT also comes a more direct relationship with (and responsibility to) private companies with profit-driven motives like Maximus, as well as food manufacturers. Additionally, the complexities of implementing and maintaining the APL signal that these processes do not eliminate human error or fully streamline things for WIC staff or participants.

WIC participants experience these ideological functions of the APL indirectly through their experience at the cash register. The APL mediates between medical, business, and program stakeholders, links the MIS and EBT systems, and makes the technology interoperable and functional, but these functions are only really visible to USDA, FDA, WIC, and private stakeholders. But even though the APL isn't immediately visible during a WIC transaction at the cash register, it is *present.* It is the information "behind" the register interface that prompts a "success" message or an error message. Going to the cash register, sorting their items on the conveyer belt, swiping their eWIC card, and interacting with the cashier and/or manager are genre interactions with the APL, even though it's not immediately visible. A WIC transaction can fail for a number of reasons: an incorrect PIN entry, insufficient balance on the eWIC card, a worn-out magnetic strip. In the case that the POS terminal indicates an item is not WIC-eligible, however, that's the APL at work.

Drawing from interviews with WIC participants, the next section will highlight how the APL is the genre that limits, and in many instances, prevents action and prompts WIC participants to create a number of rhetorical strategies for redeeming their benefits and creating a sustainable grocery shopping experience. Understanding the complexities of APL design, implementation, and function within the EBT system through infrastructural inversion (as a means of resistant reading) helps "set the stage" of understanding issues, particularly at checkout, WIC participants face when attempting to redeem their benefits. Without this infrastructural context, investigation of the issues that participants like Victoria face are obfuscated; only the cash register interface is available as evidence for the failed transaction, without additional routes for assessing underlying causes. With this infrastructural context, it becomes clearer why, and how, the APL shapes access for WIC participants.

The "When" of APL Access

When WIC participants have trouble grocery shopping due to dysfunctional APLs, they have to draw on a variety of established strategies, or create new ad hoc strategies for navigating not only how to get the food they need, but also to attend to their well-being and dignity. In other words, if the APL doesn't function infrastructurally for WIC participants, they create the "when" of access for themselves. WIC participants utilize the following strategies for establishing their "when" of access in relation to the APL: a) enlisting help; b) creating flexible shopping routes; and c) using documentation as self-advocacy. These strategies are changes to/within the textual, material, and technological environment to either work alongside the APL, work around the APL, or find someone with agency to ignore the APL, without being aware that the APL even exists. WIC participants create their "when" of access by resolving a disconnect between the local and the global created by the APL through interventions or innovations. These strategies also enable WIC participants to create a sustainable engagement with the program. In the following section, I outline prevalent rhetorical strategies enacted by WIC participants to create their "when" moments. These themes are drawn from my interviews with WIC participants in response to my second research question: How do WIC participants navigate their grocery shopping experiences mediated by the APL?

<u>Enlisting Help</u>

WIC participants enlist help within the grocery store to create moments of access. Eight of ten WIC participants interviewed engaged in this set of strategies. These strategies rely on introducing someone with authority into a "standstill situation" in order to resolve or ameliorate difficulties while shopping or checking out. This set of strategies seems to emerge from WIC

participants' experiences grocery shopping over time and accumulated knowledge gathered from difficult grocery shopping experiences. For example, Adaline, a caretaker for her great niece and nephew currently in the adoption process, recruits grocery store staff to accompany her when she has trouble shopping and finding WIC items using her Allowable Foods List: "Many have come with me and helped me find things. They help me out really well on the floor when I'm looking for stuff, and come with me to the register." Having extra eyes on the floor helps Adaline avoid mistakes and cuts down on her shopping time. Additionally, her choices are then "sponsored" in a sense by staff, creating an easier checkout experience and more willingness on behalf of cashiers to override or replace incorrect items if they're rejected due to the APL. Adaline engages this strategy most times she grocery shops.

Brianna, a mom of eight biological and foster children living in North Carolina, on the other hand, selectively engages with cashiers in moments where she needs grocery item(s) that have been rejected by the register. Because four of her children are currently on WIC, she has a complex checkout experience regardless, particularly because her foster children are counted as discrete "families" through WIC and each have their own eWIC card. Brianna recalls the last time she "stood up for herself" at the register and brought in additional people to the situation:

> I can remember specifically, Welch's grape juice. My kids love regular grape juice. I got into an argument with the manager, who got called over, because I had these three grape juices the cashier ran that didn't go through. He said I can't get them. And I told him it's on my [Allowable Foods List]. But he said no over and over. *And they ended up calling over a different manager, who explained they were having a glitch in their own system, and that I wasn't the only one having this problem.* I wasn't the only one having these issues. And I know the rules, I know them well at this point. And I got the juice.

Brianna does not always make this move; often, she explains, she simply pays for the items out of pocket and leaves, or goes without. However, in this moment, it was imperative for Brianna to get the grape juice, not only because her kids love this kind of juice, but because she knows the rules and is being told this knowledge is incorrect. When Brianna challenges the cashier, the first manager is called over, and the argument ensues. When Brianna doesn't back down, however, another manager is introduced into the situation, who brings additional authority and information that enables Brianna to get the juice she needs. The locus of the problem, the glitch in the system, is not clarified, but the reference is enough to shift the blame from Brianna to the grocery store technology. Importantly, Brianna has to choose to use this strategy selectively, only when it is absolutely critical to her that she redeems her benefits. As she explains, "People have a stigma attached to WIC, so if I make a fuss they'll judge me on it. I have to grocery shop here every week. I don't want to make that kind of name for myself at the store." As a parent with biological and foster children, she already experiences a heightened stigma because of her more complex benefit redemption requirements, and tries to remain as quiet and discreet as possible throughout her grocery shopping trips.

Lilah's strategy for making grocery shopping easier came to her after experiencing a surprisingly easy checkout. Lilah is a mom of two living in New Jersey with her husband, who sometimes helps with grocery shopping. Historically, Lilah experienced unhelpful cashiers who had not completed WIC transaction training, with a frustrated line of customers behind her creating an altogether "upsetting, embarrassing time, every time." Most often, at least one item she knew was WIC approved was denied. Even though she had purchased the item before using her benefits, another store would deny the item (an indicator that the item is not documented on that store's most recent downloaded APL). One time, however, things were different:

> I grabbed the wrong milk. I went up to the register, waited in line, and then realized. I apologized and asked the cashier if she could run someone back to go get the correct milk. And she's like, 'Oh, I'll just substitute. I'll override.' And I was like, 'What?' And she's like, 'It's not a big deal.' But I told her up until the point it really has been a big deal, up to this point nobody has substituted anything for me. And I left with almost no groceries. And she said, 'Oh, well whoever told you that is wrong. We've been told to substitute to get you want you need.' So I wrote her name down, and decided I was going to get her work schedule because all the other cashiers and supervisors that I asked said no.

From this point forward, Lilah and her husband, Jackson, who sometimes grocery shops for the family, call the store ahead of time and ask for the cashier's ("Callie") work schedule. They grocery shop only when Callie is available because they know that when she's working, they'll be able to fully redeem their benefits. Jackson describes their relationship with Callie as a "rapport" that helps make everything easier. This coordination takes extra time and work, but enables Lilah and Jackson to have more stable and positive shopping experiences.

Adaline, Brianna, Lilah, and Jackson's work to find people who can meaningfully intervene are each key examples of enlisting help, which changes the infrastructural relationship to the APL. Even though Adaline, Brianna, Lilah, and Jackson are unaware of the presence of the downloaded APL to the cash register's EBT system, their experience checking out is directly mediated by the APL. Thus, their strategies are ways to ensure that the APL works for them or to circumvent the limitations imposed by the APL; that they are able to have their items scanned, approved as WIC-eligible, and redeemed using their WIC benefits. Coordinating and rearranging people in relation to their available resources (e.g., their Allowable Foods List) creates a moment

(a specific arrangement of people, within a technologically mediated environment, with particular food items, at a particular time and grocery store) where the APL either works in the background, approves their items, and doesn't alert cashiers through an error message that item(s) have been rejected, or is simply ignored through an override.

Since the detailed guidelines of the APL dictate what is approved or denied at the register, it can create conflict, even if it's fully up to date, downloaded correctly to the register, and operating correctly with the point-of-sale technology. Drawing on the authority and knowledge of key stakeholders like cashiers and managers, as well as finding people like Callie who are willing to be proactively helpful and kind, creates "when" moments of functional *and* dysfunctional APLs. Victoria and Harmony, Black women interviewed for this study, did not discuss drawing on this strategy. While more research is needed in order to make conclusive statements about how negotiations at the point of sale are affected by factors like racial identity and nationality, taking into account Victoria and Harmony's descriptions of trying to remain as invisible as possible suggests that this strategy may be riskier for women of color. White women and caretakers interviewed were able to (and comfortable with) finding people who would help their benefit redemption attempts succeed.

Creating Flexible Shopping Routes

WIC participants also create flexible shopping routes to account for the reality that a state's APL does not represent what is actually eligible or available everywhere. Every WIC participant interviewed mentioned engaging in this strategy at some point during their time in WIC. These flexible shopping routes help participants piece together available and eligible food

products across multiple grocery stores, creating a better "match" between their Allowable Foods List and the APL.

Kassandra, for example, lives in a small town with two grocery stores, a Shop-Rite and a Walmart. Kassandra goes to the Super Walmart thirty minutes away at least once a month to "fill in the gaps" of items that are out of stock, rejected at the register, or unavailable in the right brand or size at the Shop-Rite and standard Walmart. Similarly, Victoria explains that before the pandemic, she used to shop across two Walmarts in town, but now tries to find time to drive thirty minutes away to another Walmart once a month:

> In order to lessen the amount of time in stores, I go to an even further Walmart that has everything. So pre-pandemic, I'd go to the one close to my house and the other one, and I'd have everything. Now, I can't just pop into two stores, I want to just go into one. The first store doesn't have the cereal, the second store doesn't have yogurt. The store that has everything I need is thirty minutes away to a Walmart in another town. There, I can get everything.

Traveling to the "ideal" large superstore like Walmart was a common strategy among WIC participants, and Kassandra and Victoria evidence that this strategy was useful before and during the pandemic. Compared to participants like Danielle, who live in a rural community with one grocery store for the entire county, participants in urban areas with multiple grocery stores in the area cobble together those resources. For Danielle, this lack of variety of stores is "is a bit of a barrier, or really, a lot of the barrier" for fully redeeming her benefits.

This strategy was particularly necessary for participants experiencing low stock of WIC items in their pre-pandemic grocery route. As Adaline explains, "When stores were out I drove around to three stores, one pretty close, one thirty minutes away, one an hour away. They were

all out of milk. It was worrisome, it was stressful there for a while." Participants changed their routes, sometimes driving very long distances, to find reliable locations where they could redeem their benefits.

This need to find the "ideal" store is not driven solely by the APL, but the APL does play a role in creating the need for such a strategy. Because the APL hyper-standardizes eligible WIC food items, stores simply might not have the right items or might have the right items but an outdated APL. Additionally, stores might have items that are WIC-eligible that have not yet been updated to the most recent APL. Each of these scenarios prompt WIC participants to shop across multiple stores, if they can, or ideally, find a store within a drivable distance that has everything, even though that store is often further away.

Other participants, like Lavender, have changed their grocery shopping route to take advantage of stores that are implementing creative solutions for WIC participants. Lavender is a non-binary, disabled student living in a rural area of New Hampshire with limited grocery stores around. Lavender explains that they drive thirty minutes away for a local chain that has implemented curbside pickup for WIC and SNAP participants:

> They're one of the only grocery stores that offer it. You shop online through their app and when you checkout you select that you're going to use EBT. Then, you don't have to prepay for it. You submit your order and get notice your groceries are ready 3-4 days later at a specific time. When you get there, the attendant takes your WIC card and debit card and then they run it that way. Then they ask for your PIN and they go inside and run your card. They offered that I can go inside and enter my own PIN but I'm fine with it. Then they run my debit card as a credit card.

> I have to drive thirty minutes from my house to do this, so I could go to a store ten minutes away, but they don't do curbside. And since I'm immunocompromised, I'm not going into stores, my partner isn't going into stores. We plan our grocery trips way in advance, almost a week, so I just use the store app to order what I want. If it's in stock, great, if it's not, oh well.

Lavender's explanation highlights the catch-22 of their new shopping route, tailored to their particular needs when using WIC during the pandemic. Curbside is a rarity for WIC participants, and Lavender is willing to go to great lengths to be able to use this service. However, the APL's location (downloaded to the point-of-sale technology, inside the grocery store) presents new problems for Lavender. Specifically, they "find out things are ineligible after I pay. Which is kind of shitty." Since Lavender does not (and cannot) pre-pay using eWIC when placing the order, the APL filters eligible and ineligible items when the cashier runs their card inside the store, then runs the debit card to pay for all non-WIC items. Thus, Lavender's flexible shopping route accommodates their need to stay out of grocery stores, but eliminates the possibility that Lavender can address issues with their transaction at the register before their debit card is run by the cashier.

Creating flexible shopping routes is a pre-pandemic practice that has, for many participants, become even more necessary (and urgent in different ways) during the pandemic. While the implementation of EBT and the consequent revisions to the MIS to include the APL created this need prior to the pandemic, additional food shortages brought on by the pandemic, as well as the need for safer shopping conditions have exacerbated these problems.

Using Documentation as Self-Advocacy

When faced with problems in the grocery store aisle and at the cash register, many WIC participants rely on WIC documentation to advocate for themselves. Six out of ten WIC participants described using this strategy to aid in their WIC benefit redemption. Since the APL operates behind-the-scenes, these more visible forms of WIC documentation work to challenge or override the authority of the APL during negotiations with cashiers at the register. For example, Jackson, Lilah's husband, brings the Allowable Foods List with him while grocery shopping, even though it's not always helpful when arguing with cashiers:

> They give you this big list with stuff like bread, and they don't break it down, they say you can have wheat bread. But it says wheat bread has to be at 16 oz. Well, no one makes 16 oz. wheat bread except one company, yet they give you this whole list with all these companies' names. But yet, there's only one brand across all the different places where we can buy bread. It's Sara Lee 16 oz. bread. But then you list all these other brands, but that's it. 20 oz., 20 oz., except for one. Why are you including all these companies if they don't make a 16 oz.? It's not on the shelf.
>
> That was the learning curve, you're going out to buy stuff, this bread is on WIC's list, so I'll grab it. Well, you go to the register and they say it doesn't qualify. Well, why doesn't it qualify? You're trying to talk to the cashier about it as you're trying to buy everything else. Sometimes it works, sometimes it doesn't.

Additionally, Jackson brings the flyer he received from his local WIC clinic explaining the flexibilities to food packages currently available because of the pandemic. This flyer, along with the Allowable Foods List, ideally provide Jackson sufficient "backup" when he experiences trouble at the register.

Like Jackson, Victoria relies on her flexibilities flyer while grocery shopping, along with the WICShopper phone app, which includes a digital version of the Allowable Foods List that integrates flexibilities into the list. However, these forms of documentation aren't always persuasive to cashiers and managers:

> I read online there were more flexibilities with the program, and saw those choices on the app. But actually going into the store and attempting to get different sizes and more choices? You go into the store and they don't have them. So I can get more choices, but they aren't available. It says in the list we can get these expanded options, but when you actually try to check out it doesn't register in their system. So it's like, okay, well, there's nothing the cashiers can do about that. And there's nothing I can do about that, and even if I call WIC there's nothing they can do about that. So okay, I guess I'll just pay for this box of cereal which is pretty inconvenient especially since the app says I can get it.

For Jackson and Victoria, self-advocating by referencing WIC documentation like the flexibilities flyer and WICShopper app are helpful at times, but it ultimately depends on whether cashiers or managers change their mindset because of these texts. Even though these texts are clearly marked with WIC logos and directly associated with WIC, cashiers and managers sometimes default to what is standard store practice. Even though the WIC program authorizes and confirms vendors as WIC-approved sites for participants to redeem their benefits, at the point of sale, more power seems to rest with cashiers and managers to decide how, and if, to work with WIC participants to make their benefit redemption successful. For participants like Jackson and Victoria, the mediating role of the APL sometimes overpowers their appeals using authoritative WIC texts.

For WIC participants like Harmony, using the WICShopper app allows increased agency to determine whether an item is WIC-eligible on the shelves before bringing it to the register. Even though those items may still be rejected at the register, drawing on the information in the help does sometimes help avoid those problems. As Harmony explains, “I usually memorize my benefits anyways, but when I’m at Walmart I check my app, and I always scan the baby food because WIC is so picky about it. So I use the app to make sure it’s on WIC before I put it in my cart.” Ideally, the WICShopper app scan function is in alignment with the APL, which can create a more streamlined process for shoppers to determine eligibility. This practice is especially useful for items like baby food, as Harmony mentions, which change size and composition frequently and thus are often not represented on the APL.

Using documentation as self-advocacy is another way WIC participants create “when” moments that ultimately lead to more sustainable grocery shopping practices. Particularly during the pandemic, this practice (when successful) helps to account for the mismatch between WIC flexibilities and what food items are represented on the APL. If cashiers and managers accept documentation like the flexibilities flyer as authoritative, for example, WIC participants are able to circumvent the limitations of the APL and fully redeem their benefits.

Conclusion

WIC participants engage these strategies (enlisting help, creating flexible shopping routes, and using documentation as self-advocacy) to create sustainable benefit redemption, even as they make sacrifices and exert additional time and labor to engage these strategies. Sometimes, however, these strategies are more work than they’re worth, particularly in the wake of safety and health concerns introduced by the pandemic. Four WIC participants shared that for

the first two to three months of the pandemic, they stopped using their benefits altogether because of the grocery store runs and concerns about the virus. Even now, the tradeoffs are something WIC participants contemplate. Lilah explained that when considering whether to go shop, she asked herself, "Is it worth it? Can I make it through without WIC today?" Likewise, Brianna decides "based on how bad I need it … and do I have the extra money for it, or was I really counting on WIC to buy it?" Victoria highlights that grocery shopping with WIC, a process that was involved to begin with, has a new layer of danger that creates impossible choices for caretakers:

> People like me are getting WIC because they have a child or are pregnant. We are vulnerable people. We are people that shouldn't go into the stores. But we're being forced to go into stores. At the beginning of the pandemic I asked one of my ex-co-workers what she was doing. Because my only option was to not go. She said, I have to go. I do everything in one shop, the husband has the baby and separates him while I go to the hamper, and then I go and take a shower. And I thought, oh my goodness.

In short, the pandemic introduces complications for WIC shoppers that didn't exist before *and* reveals existing issues that have always made grocery shopping challenging. Both sets of complications, in relation to the APL, create significant trouble for benefit redemption. Importantly, neither the pandemic, nor the APL, nor the wider technological shift from paper to EBT, can be identified as a root cause of benefit redemption problems. Benefit redemption problems are complex, and infrastructural—bound and dependent on time, place, technology, texts, and people. These infrastructural problems are rooted in a history of neoliberal welfare reform and, at their most essential, are specific locations where systemic sexism, racism, and ableism seem to be upheld.

Contextualized within the infrastructural inversion of the APL, WIC participants' experiences grocery shopping (and the problems they face) are less mystifying. WIC participants run into these problems not because they don't understand the rules or are ignoring the rules. These problems persist because WIC participants enter into a site of negotiation at checkout, one where authority and agency must be contested. This contestation is hard work, and work that invites further conflict and stigmatization into an already arduous process. More interview data is needed for a better picture of the experiences of the full spectrum of WIC participants in the program, and how gender, race, and disability influence these infrastructural experiences.

Within the historicization of the APL and the analysis of its pragmatic and ideological functions, understanding how the APL mediates benefit redemption for WIC participants highlights when it operates infrastructurally and when it creates problems. Because of the constant flux of changing product types, sizes, and brands that go accounted and unaccounted by the APL, there is a kind of consistent instability of material goods circulating within grocery stores that isn't ever fully captured through APL documentation. Because of this basic disconnect between what exists in the grocery store and what is represented on a given state's APL, WIC participants are not only entering into a grocery store that is materially different every time, but a grocery store mediated by the EBT system which may also be different because of changing point-of-sale technologies and different versions of the APL. Therefore, the relationships between WIC participants and the MIS-EBT system can never be mapped in a static manner. However, through talking with WIC participants and contextualizing particular moments (like Lilah and Jackson's first checkout experience with their favorite cashier, Callie) within an infrastructural inversion of the APL, it is possible to locate moments where the APL becomes infrastructural, a moment of access.

This chapter highlights findings from my qualitative analysis of the APL. Through engaging infrastructural inversion as a means of resistant reading, I show how the APL emerges with the shift from paper to EBT benefit redemption in WIC, and how this shift is historically situated within neoliberal welfare reform. This analysis highlights the pragmatic and ideological functions of the APL, and how these functions contextualize grocery shopping and checkout experiences of WIC participants interviewed for this study. From these findings, I argue that the APL, as an information infrastructure genre, is part of "the system" that upholds and perpetuates systemic inequality within the program. By locating "when" moments of access enacted by WIC participants, I show how women and caretakers must put in additional time and labor into an already arduous process in order to successfully redeem their benefits.

In the next chapter, I discuss implications of the research findings outlined in this chapter. In particular, I discuss how the rhetorical strategies WIC participants engage to create "when" moments of access seem to create additional work, time, and risk for women of color, creating a heightened visibility and vulnerability at the cash register that seems to further marginalizes bodies that are already more highly surveilled and visible in public spaces. I argue that tracing the social action and inaction enabled by the APL suggests that the hyper-standardization of food item eligibility created and perpetuated by the APL within the MIS-EBT information infrastructure has not only sexist, but also racist and ableist consequences. Then, I suggest implications for Rhetorical Genre Studies, as well as the broader conversation within writing studies about the relationship between writing, technology, and access. Finally, I describe areas for further research to investigate the relationships between genres, infrastructures, and access.

Chapter Four: Bridges and Barriers

In her explanation of information infrastructures, Susan Leigh Star states, "There are millions of tiny bridges built into large-scale information infrastructures, and millions of (literal and metaphoric) public buses that cannot pass through them" (389). The APL (though not so tiny, if measured by file size) is, sometimes, a bridge for WIC participants. At other times, it's a barrier. The findings outlined in the previous chapter attest to the variability of the APL's function—depending on whether the nightly file was correctly downloaded to a given cash register, or whether a new shipment of baby food with a different ounce size is stocked on the shelf before it's documented, for instance. The stories of WIC participants interviewed for this study highlight that at different times, in different grocery stores, the APL functions differently—a frustrating checkout process at the closest Walmart might not have been a problem at all at the Walmart on the edge of town. Their stories are stories of continuous problem-solving, guessing, second-guessing, and hoping that it all works, navigating the bridges and barriers as they appear.

In this chapter, I further analyze the findings outlined in Chapter Three and their implications. I suggest implications for Rhetorical Genre Studies, as well as the broader conversation within writing studies about the relationship between writing, technology, and access. Finally, I describe areas for further research to investigate the relationships between genres, infrastructures, and access.

How does the APL function infrastructurally within the WIC program?

The APL doesn't consistently function infrastructurally within the WIC program for the participants I interviewed, meaning it doesn't create stable routes for benefit redemption. While

the APL can be described to be part of WIC's information infrastructure, I would argue that through understanding the experiences of WIC participants interviewed for this study, it doesn't always *function infrastructurally* on an individual level. When items are rejected at the register, the genres WIC participants can engage directly (like their Allowable Foods List) come to the forefront, but not the genre that's actually causing them problems (the APL). The APL also often doesn't function infrastructurally for cashiers or managers. It creates tense situations at the register, and gives them limited routes for action. Because an unsuccessful transaction is communicated by an error message, cashiers and managers must directly reject the authority of the EBT technology to create routes for successful benefit redemption for participants, a choice that many are hesitant or unwilling to make. Cashiers and managers are positioned as "upholders" of the success or error messages on the register, which are directed by the APL. Therefore, cashiers and managers also uphold the authority of the APL, even as it makes their jobs more difficult because of lengthier transactions and conflicts at the register. For the WIC participants interviewed, the APL seems to inhibit more than enable benefit redemption.

For key stakeholders involved in ensuring MIS and EBT interoperability for the technological shift from a paper based to EBT benefit redemption method system, the APL is key to the design and maintenance of this updated information infrastructure. As described in Chapter Three, the APL acts as a mediating touchstone between the USDA and FDA, WIC technology partners, and WIC state agencies that establishes consensus during a complex design process. Additionally, the APL acts as a touchstone between WIC state agencies and food and formula manufacturers as manufacturers work to prioritize and heighten visibility of their products in a system that hyper-standardizes eligibility. As the findings of this study demonstrate, the APL pulls a significant amount of infrastructural weight in the EBT benefit

redemption benefit system not only to ensure functionality, but to stabilize the relationships between key stakeholders in the midst of change.

As the COVID-19 pandemic emerged and persisted, my analysis revealed the infrastructural function (and dysfunction) of the APL to an even greater extent. The findings of this study indicate that although the transition to an EBT benefit redemption method system was marketed as a way to eliminate human error, create a streamlined transaction, and increase access for WIC participants, WIC participant benefit redemption was significantly hampered because of the role of the APL as part of this updated system. By design, the APL is not set up to increase access for WIC participants, particularly not within a context of limited food product availability because of supply chain issues and shortages. Instead, the hyper-standardization of eligible food products established by the APL tends to exacerbate recurrent issues the WIC participants interviewed for this study faced when grocery shopping, including finding eligible products at just one store and having items accurately documented and processed as eligible.

In other words, the APL functions as part of WIC's updated information infrastructure but doesn't necessarily function infrastructurally for individual WIC participants day to day, moment to moment as they grocery shop and attempt to use their WIC benefits. In other words, while it's possible to locate the APL as an information infrastructure genre, this study shows that the APL doesn't always function as a beneficial infrastructure for participants. This may sound contradictory—how is the APL part of the information infrastructure but not infrastructural for individual participants? But this is the tension this project embraces—the APL is part of WIC's information infrastructure but not infrastructurally supportive for many WIC participants. From an infrastructural perspective, "no artifact, computer-based or otherwise, is a discrete entity, a standalone *thing*. Its development and use are defined by complex relationships" (Star and

Ruhleder 254, original emphasis). The APL's pragmatic and ideological functions are intrinsically connected to the people whom it functions (and doesn't function) for. The APL functions with more consistent stability as the key genre that ensures interoperability between the MIS and EBT systems to create systematic ways to enter, store, share, and destroy information across WIC offices and clinics from the national to the local level than it does for WIC participants attempting to redeem their benefits. The APL has multiple infrastructural functions that both enable and limit action.

How do WIC participants navigate their grocery shopping experiences mediated by the APL?

Laboriously. WIC shopping already takes a lot of time, and any challenges at the register require additional inputs of time and labor to make benefit redemption possible. This additional input of time and labor privileges WIC participants who are already more resourced; it disadvantages and further marginalizes participants that don't have extra labor and time to give to the process. This qualitative study consisted of ten interviews with participants recruited through convenience sampling (Chapter Two); therefore, there are not definitive conclusions that can be extrapolated from this study that have statistical significance in terms of race, ethnicity, gender, and/or disability. However, the stories shared by WIC participants center their embodied experiences being in the WIC program, and evidence that these factors matter. In the following section, I argue that this study shows that race, in particular, was a factor that seemed to create additional visibility and vulnerability during grocery shopping experiences.

<u>Inconvenience vs. Risk</u>

This study shows that race was an important factor that seemed to exacerbate the visibility and vulnerability during checkout, a recurring situation created by the APL's functions. Specifically, the data indicated that while white women and caretakers interviewed often viewed the additional labor and stress of checkout interactions as inconvenient, as well as embarrassing, women of color interpreted these interactions as risky. In addition, women of color interviewed for this study seemed to go to greater lengths to stay, as Lourdes described, "invisible as possible" during grocery shopping and checkout.

In their edited collection on the intersections between race, technology, and everyday life, Nelson, Hines, and Tu identify women of color as "the hidden circuits of technical labor" (6). While their focus is on women's labor in information technology development, their description resonates with my interviews with Victoria, a Black woman from Amherst, New York; Harmony, a Black woman from Hutchison, Kansas; Lourdes, a Hispanic woman from Plymouth, Massachusetts; and Nina, a Black woman from Raleigh, North Carolina. Victoria, Harmony, Lourdes, and Nina each described the great lengths they went to in order to redeem their benefits, but also emphasized that they prioritized staying under the radar in general during shopping and checkout. While this hypothesis would need to be tested again through more systematic means than convenience sampling, I found that Victoria, Harmony, Lourdes, and Nina report engaging in the strategies outlined in Chapter Three *and* seem to input additional effort to stay as invisible as possible in order to feel safe.

Within the hyper-standardized environment generated by the transition to EBT and the role of the APL, women of color have to know the rules, follow the rules, *and* work to reduce their visibility as someone on government assistance, not only to avoid embarrassment (as many women described), but to feel safe. While four of six white women mentioned avoiding

prolonged cashier interactions because of inconvenience (e.g., not having enough time) and embarrassment (e.g., customers in line noticing they are checking out with WIC), every woman of color described feeling uncomfortable, unsafe, and/or vulnerable either when items were rejected at the register, or during the process of grocery shopping and checkout in general.

As Victoria described in her interview, every time she approaches the cash register, she feels like people are already scrutinizing her because she's Black. Nina also mentioned this in her interview. In order to minimize their visibility as people on welfare, Harmony, Victoria, Lourdes, and Nina stated they never engage with the cashier if items are rejected. They leave the grocery store without those items; Nina chooses to "make the most of what goes through," and Harmony "gets what [she] can" even if that creates significant inconveniences later on in terms of meal planning. This work is technical labor—it requires a thorough knowledge not only of the rules and requirements of the WIC program, but also the unspoken expectation of never challenging an authority like a cashier or manager. This technical labor seems to burden women of color with additional inconveniences, rather than creating a "when" moment of access that results in full benefit redemption. When I asked Nina why she didn't challenge the cashier, she stated, "That just doesn't put me in a good position, I don't feel comfortable at all … yeah, it's like I'm being aggressive to them, that's never going to look good." In comparison, when I asked Victoria, a white woman, why she sometimes chooses to not challenge the cashier, she stated, "Oh, it just takes too much time. It's going to depend on how much time I have or how much time Jackson [her husband] has to get the manager over." At the time, I listened to Nina's answer and moved on, but I wished I would have followed up to ask what she meant more specifically. In looking at Nina's answer compared to Victoria's, as well as many other examples in the data, there were missed opportunities for me to ask follow-up questions about whether, for example,

Nina felt like she would be perceived as aggressive specifically because she is a Black woman. Only Victoria spoke directly about her experience as a Black woman on WIC and how she felt her identity as a Black woman on welfare shaped customers' and cashiers' perceptions of her.

Given the historicization of the emergence and function of the APL as part of neoliberal welfare reform and the ways this reform has historically marginalized people of color, especially women, it is perhaps unsurprising that this analysis shows a distinction between the ways white women and women of color experience the APL as a mediating force during checkout interactions. The APL's mediating functions situate cashiers in what Jovi, the WIC Director, described as a policing role, creating an immediate power imbalance between a WIC participant and the cashier, who is prompted to uphold whatever the cash register determines is eligible or ineligible. The interview data indicated a distinction between white women's efforts to avoid inconvenience and women of color's work to avoid risk, which is an important implication that suggests APLs, as part of the new EBT technological arrangement, may least serve one of the populations that already experience significant "barriers" with benefit redemption. Ultimately, more focused research is needed in order to provide further insights into the ways women of color input time and labor to create "when" moments of access.

Additionally, more data is needed for an intersectional approach to understanding marginalization and vulnerability during experiences like checkout. Like Victoria, Harmony, Lourdes, and Nina, Lavender described similar experiences of feeling physically uncomfortable and unsafe during grocery shopping and checkout. As a nonbinary, disabled, pregnant person, Lavender chooses to avoid going into the grocery store altogether and opts for curbside pickup, which is overwhelmingly unavailable to most WIC participants. However, as described in Chapter Three, this curbside pickup process is complicated and often leads to Lavender paying

out of pocket for items that are rejected as ineligible. Lavender describes that they "used to go to the store, but I got so angry and anxious just walking in" because the process was so overwhelming and required fast-paced decision-making. Lavender explained that they have "executive function trouble," which makes grocery shopping take longer, and especially so with WIC. Combined with the fatigue of pregnancy and stress introduced by the pandemic, grocery shopping in person wasn't only inconvenient, it was nearly impossible. The processes required for successful benefit redemption do not align with Lavender's body, nor their desire to remain as "inconspicuous" as possible as a WIC shopper. In a recent article, Annika M. Konrad theorizes access fatigue, the labor and the exhaustion disabled people experience as they create moments of access for themselves. Konrad notes the that the "sheer volume and frequency of the rhetorical work of access" cannot "be isolated from other rhetorical burdens that result from oppression and marginalization" (193). Access fatigue centers the experiences of disabled people, and should not be conflated with the experiences of all the people that participate in WIC. However, this fatigue does resonate specifically with Lavender's experience, a nonbinary, disabled, and pregnant person who expends time and energy to meal plan weeks ahead, drive to an inconvenient grocery store because it allows curbside pickup, and accept quietly whatever items are accepted or rejected as WIC-eligible in order to both advocate for themselves (to get the food they need) as politely and invisibly as possible. Lavender works to establish invisibility in order to mitigate some of the fatigue that would likely result from cash register interactions.

Further data collection that from the beginning seeks to understand the connections between factors like gender, race, disability would help to generate stronger conclusions about the ways the APL functions and its role in enforcing and/or maintaining sexism, racism, and/or ableism. Additionally, a larger number of study participants would help to test the tentative

hypotheses generated from this study. My hunch is that the function and dysfunction of the APL is a key site to observing that enforcement and maintenance taking place. This study cannot make broad, categorical conclusions about the experiences of all women of color and/or disabled people in the WIC program. I'm suggesting that the APL is a specific location within the MIS-EBT system which produces a relationship between cashier, cash register, and WIC participant that heightens visibility to bodies that may already be more "visible" (Black, disabled, pregnant) and therefore already subject to unwanted attention, surveillance, and/or policing. Additionally, because of the unique state-level arrangements of EBT benefit redemption technology, I also do not intend to suggest that APLs all function the same way. This study foregrounds the individual, embodied, specific experiences of ten participants, including Victoria, Harmony, Nina, Lourdes, and Lavender, who are all affected by the indirect role of the APL in some way and therefore prompted to expend additional time and labor in order to redeem their benefits.

It is hard work to be on government assistance – especially in the pandemic, but to an extent always – even if it works. If it doesn't work, that's even more work, and work that tends to place blame on participants, increase their visibility in a process that can already be stigmatizing, and wear on their bodies. Studies of WIC participant shopping experiences (Bertmann et al. 2014; Gleason et al. 2014; Najjar 2013; USDA/ERS 2010) have recognized that negative grocery store interactions result not only in embarrassment and stigmatization, but lowered program participation rates and high attrition. For example, Bertmann et al. find that "barriers," including "experiences of negative interactions in stores, dealing with misunderstandings over WIC benefit redemption rules, or feeling embarrassed or judged in relation to using WIC benefits" (56) are directly related to an under-redemption of benefits. Bertmann et al. suggest that understanding how "more experienced WIC participants make use

of … benefits and whether these strategies could be taught to new WIC participants as they enter the program" (57) could be useful. In part, this study suggests that there is much to be learned from the technical labor of WIC participants as they navigate grocery shopping and redeeming their WIC benefits, and that centering how the APL functions, as bridge or barrier moment-to-moment, will help us understand more about how "the system" of WIC EBT benefit redemption does not serve all participants equitably.

What is the relationship between genres, infrastructures, and access?

The findings of this qualitative study suggest genre is the "when" moment of infrastructure, "when" access happens. Genres are, according to Carolyn Miller, "typified rhetorical actions based in recurrent situations" ("Genre as Social Action" 159) and a "rhetorical means for mediating private intentions and social exigence … connecting the private with the public, the singular with the recurrent" (163). Genres are ways for individuals to get things done in the world that have social significance and recognition. For WIC participants, the genres of benefit redemption can help mediate their intention (to acquire food for their family) with the social exigence of the program (to resolve the nutritional risk of low-income women, infants, and children). However, this study demonstrates that attention to a genre like the APL introduces some additional complexities into identifying and tracing typified rhetorical action based in recurrent situations. Any incompatibility between benefit redemption genres (assigned food packages, Allowable Foods List, flexibilities flyer, eWIC card) and the APL can result in stymied rhetorical action—not because of insufficient genre knowledge or an ineffective genre performance, but because of a disconnect between the program's information infrastructure and the resource genres WIC participants have as part of their repertoire. This study shows that this

disconnect is, from an infrastructural perspective, a disconnect between the local (individual action) and the global (the information infrastructure). Infrastructures "[occur] when the tension between local and global [are] resolved" (Star and Ruhleder, 1996, 114), and often, *infrastructures aren't occurring* as WIC participants draw on their benefit redemption texts throughout the process of grocery shopping.

Because stymied rhetorical action sometimes seems to be the most recurrent aspect of WIC grocery shopping, WIC participants engage in the process of creating access for themselves through the strategies outlined in the previous chapter (enlisting help, creating flexible shopping routes, using documentation as self-advocacy). These strategies are part of what Annette Harris Powell describes as access-as-practice, "resulting from accumulated literacies … an ongoing process in which technological literacy is gained [and] knowledge is accumulated" (18). By engaging these strategies, WIC participants create resolution between the local and the global in order to avoid (or resolve) stymied action and bring about successful benefit redemption. In other words, WIC participants create access for themselves through these strategies, creating meaningful social action.

Without the context of the APL's role as part of WIC information infrastructure, a genre analysis of WIC benefit redemption genres and the recurrent situation of stymied benefit redemption may uphold the narrative that WIC participants are ultimately at fault when their transactions fail. A genre analysis without this infrastructural context might position the error message present on the cash register interface as authoritative, uncomplicated—it says the item isn't WIC eligible, so it must not be. WIC participants must be selecting incorrect items from the shelves and trying to pay for them with their benefits. This genre analysis might conclude that WIC participants engage in strategies to create access for themselves because the rules of the

program are confusing—which is why they're selecting the wrong items, for instance. An analysis of WIC participant's benefit redemption texts and interviews with WIC participants would uphold the APL's role as an invisible, and ultimately unnoticed, genre.

Adding an infrastructural perspective to genre analysis adds another lens to studying the world through "genre-colored glasses" (Devitt) that enriches our study of genre access. These genre-infrastructure glasses (I picture them as steampunk glasses) help us to see that the interaction between a WIC participant and a cashier at the cash register is mediated not only by visible resource genres (assigned food package, Allowable Foods List, flexibilities flyer, eWIC card) and EBT technology (cash register, scanner, PIN pad). In fact, both the visible resource genres and EBT technology are mediated by WIC's information infrastructure via the APL. An infrastructural perspective locates and provides an understanding, then, of *why* WIC participants need to engage strategies to create access and ensure successful benefit redemption, as well as what these practices actually address in terms of the disconnect between the local and global.

Understanding genres as "when" moments of infrastructure highlights that WIC participants accumulate a knowledge of effective ways to navigate the grocery store as a technologically mediated environment, even though they don't have direct knowledge about the inner workings of the MIS or EBT benefit redemption method system. As Carolyn Miller describes,

> What we learn when we learn a genre is not just a pattern of forms or even a method of achieving our own ends. We learn, more importantly, what ends we may have: we learn that we may eulogize, apologize, recommend one person to another, instruct customers on behalf of a manufacturer, take on an official role, account for progress in achieving goals. We learn to understand better the situations in which we find ourselves and the

> potentials for failure and success in acting together. As a recurrent, significant action, a genre embodies an aspect of cultural rationality. (165)

This study of the APL, I think, showcases WIC participants' genre knowledge (drawing on their resource genres) *and* a kind of infrastructural knowledge (drawing on the rhetorical strategies outlined in Chapter Three). Interestingly, though, this study doesn't show that WIC participants "learn to understand better the situations in which [they] find [themselves]" (Miller) – they develop sophisticated strategies for navigating "the system" without understanding why what is happening is happening. WIC participants learn how to effectively navigate grocery shopping as they participate in the program and engage strategies for creating access. The WIC participants interviewed for this study did not understand why benefit redemption kept going poorly, only that if they wanted to acquire food through WIC, they needed to employ these strategies. Although they drew on the available benefit redemption genres and employed these sophisticated strategies for ensuring successful transactions, this genre action was a form of cultural rationality that responded to a problem, the source of which was unknown. Lourdes described her thought process when she's experienced issues at the register in her interview:

> What happens now? It's like an unknown force that controls my experience, good or bad. What do I have to do? Do I have to offer up a sacrifice or something for this to work? I don't know what's going on here.

Lourdes' description of her thought process resonates with several other WIC participants I interviewed. Even though Lourdes also described engaging in strategies to create successful benefit redemption, overall, her felt sense of WIC grocery shopping was that it was a capricious, random process. Lourdes' strategies for navigating the program's benefit redemption requirements showcased her knowledge and experience, but evidences a distinct kind of genre

knowledge and performance. Because the APL operates truly behind-the-scenes, I'm not sure if it's accurate to describe participants' strategies for creating access as a traditional kind of genre knowledge. Instead, this infrastructural (genre?) knowledge seems to be similar, in that it's deployed strategically and is context-bound (in terms of time and place). Yet, this knowledge translates into performance in a way distinct from a more traditional genre performance, like filling out a medical form. In the case of a medical form, there's a direct interaction with a text.

In the case of the APL, WIC participants still interact with the text, but the APL mediates the direct interaction with the cashier and cash register. The relationship between the information infrastructure genre (APL) and more "present" genres (participant-cashier negotiations, resource genres like the Allowable Foods List) seems to be mediation, or perhaps more accurately, adjudication. A WIC participant brings food items to the conveyer belt, with evidence of their eligibility (often through the Allowable Food Items List and/or flexibilities flyer), and the APL file adjudicates, makes a final judgement, on whether items are eligible or not. The cashier or manager can act as intercessor (like Callie) who intervenes and "overturns" the decision based on evidence, or can uphold the "law" set out by the APL via the cash register. In this metaphor, WIC participants are, in a sense, "on trial" at the cash register and bear the burden of proof to show food item eligibility, and therefore at times must go to great lengths to guarantee as uncomplicated of a transaction as possible, even though the "law" (the specific APL file downloaded) can change from store to store. While state agencies work diligently to maintain a fully accurate APL that documents all eligible items, this accuracy is compromised as soon as even one food item changes size, name, or adds a new ingredient, which leads to a UPC change. In order to create "when" moments of access, WIC participants have to abide by the APL of a particular grocery store, at a given day and time, regardless of how accurate it actually is.

Importantly, WIC participants have no clear way of knowing how accurate the APL is, since it's unclear it even exists, let alone that it mediates their interactions at checkout.

Implications

The findings of this study have several implications for Rhetorical Genre Studies, and more broadly, for how an infrastructural approach to studying genres can be leveraged to address issues of access and inequity in terms of gender, race, and disability within writing studies. First, this study demonstrates the utility of locating and studying the genres (like the APL) that make up information infrastructures as a way to analyze the infrastructural genres that underlie more "visible" genres (like the Allowable Foods List). Second, this study suggests that critical genre studies would benefit from applying an infrastructural perspective to the study of genres in order to better identify how genres shape access, uphold and perpetuate inequalities, and marginalize people. Third, this study has implications for our understanding of what constitutes antecedent genres, genre knowledge, and genre performance.

Studying Information Infrastructure Genres

Susan Leigh Star, in her now foundational article *The Ethnography of Infrastructure*, opens with this statement:

> This article is in a way a call to study boring things. Many aspects of infrastructure are singularly unexciting. They appear as lists of numbers and technical specifications, or as hidden mechanisms subtending those processes more familiar to social scientists. It takes some digging to unearth the dramas inherent in system design creating, to restore narrative to what appears to be dead lists. (377)

As Star explains, studying infrastructure requires paying more attention to the mundane, the normalized in order to "restore narrative," to break past the veneer of neutrality in order to locate and describe the functional and ideological consequences of human decision-making and action.

Information infrastructure genres are (at least for this genre researcher) so exciting to study because they are "boring things" with consequentiality. A genre like the APL enables social action as a mediating touchstone between key stakeholders and an MIS-EBT systems linchpin. It also stymies and prevents social action, creates a high-pressure environment at the register where interactions between cashiers and WIC participants occur, and establishes a hyper-standardized grocery shopping environment in which WIC participants often must expend time and labor to limit their visibility and vulnerability as someone on government assistance. Across different states, Indian Tribal organizations, and U.S. territories, local implementations of APLs are a primary influence that shape the grocery shopping experiences of participants. This study suggests that it is more than worthwhile to locate information infrastructure genres like the APL, and furthermore, to foreground these genres for genre analysis. When I first located the APL, I thought that an understanding of the genre would primarily help me understand what originally were the "key" genres of the project—food packages, Allowable Foods Lists, and flexibilities flyers. However, as the project continued, it became clear that the APL *was* a key genre—in fact, it's where the action was: where power was established, where relationships were clarified, and where systems design was happening. Ultimately, I realized the local implementations and functions of APLs across different grocery stores are sites of struggle for WIC participants, even though APLs are hidden from view.

I posit that Rhetorical Genre Studies will benefit from more attention to information infrastructure genres. In "Future for Genre Studies," Kelly states "Genres are never at work in

isolation … with the emergence of online new media environments, our technological contexts continue to yield different kinds of relations and merit continued and further exploration" (293). Studying information infrastructures takes up this call because it is a way to better integrate the study of genres and technology, as well as turn attention to technologically mediated environments where different layers of genres may be at work. Additionally, information infrastructure documents (including technical specifications, interface requirements, and systems design planning documents) of government programs like WIC are all publicly archived and immediately available for analysis.

Applying an Infrastructural Perspective to Critical Genre Studies

This study suggests that critical genre studies may benefit from an infrastructural perspective in order to investigate how genres shape access. This infrastructural perspective can locate the "when" of access for people, as well as the ways race and disability play a role in negotiating these moments of access. As outlined in Chapter One, critical genre studies scholarship has focused on how genres function ideologically (Paré, 2002), how genres influence identity formation (Bazerman, 1996), and how genres contain silences and perpetuate exclusion (Randazzo, 2015). In "Genre *for* Social Action," Devitt powerfully describes how these functions of genre matter:

> Genres matter because they carry with them not just conventions but expectations and norms. Genres matter because they shape the people who use them into particular kinds of actors performing particular kinds of actions. Genres matter because people enact not just a genre but its accompanying system, institutional setting, and cultural values. Genres matter because people may use genres without being aware of genres' ability to

> support or inhibit their motivations and goals; or people who may use genres fully aware of how genres can manipulate those who are unaware. Genres matter. (17)

Through genre analysis that incorporates attention to information infrastructure, it becomes clearer how and when genres matter, how their ideological function can ebb and flow. For example, a fully updated APL that accurately reflects eligible food items will affect a WIC participant differently than an outdated APL, creating a different circumstance at the register and degree of visibility. This nuance is lost if attention is only on the interaction at the register and analysis of visible genres. While there is certainly much to be gained from analyzing the Allowable Foods List and food packages, I wouldn't have been able to understand why checkout can be such a mystifying and exhausting experience for WIC participants without the APL.

In order to more fully understand how and when genres matter for people, genre researchers might approach a research site with attention to technological arrangement. Where there's technological arrangement (an infrastructure in its own right), there tends to be information infrastructure. For example, Devoss, Cushman, and Grabill show how an infrastructural approach to studying students' new media composing reveals the underlying information infrastructures that influence their work, including "invisible institutional structures and policies, such as those related to permissions to save on networks, file management and architecture, and file size and compression" (35). Identifying information infrastructure genres like institutional policies related to new media and multimodal design using software and hardware owned and maintained by the university system is one example of genre analysis that may enable more specific routes to locating issues of access.

Genre Knowledge and Antecedent Genres

The role of the APL as part of WIC's information infrastructure and its influence on WIC participants' grocery shopping experience doesn't map neatly onto existing characterizations of genre knowledge. Because a WIC participants' interaction with the APL is mediated, both by the cashier and the cash register, they never interact directly with the APL—in fact, only a trace of the APL is visibly present at all during checkout in the form of the success or error message on the cash register interface. Therefore, neither WIC participants nor cashiers actually see the APL Excel spreadsheet during a WIC transaction. Despite the relatively invisible status of the APL, it enables action (sometimes) for WIC participants, establishes a relationship between participant and cashier, and upholds the power and authority of EBT technology. Additionally, WIC participants have developed sophisticated strategies for securing more stable social action (successful transactions) at the grocery store. These strategies can be understood as infrastructure knowledge—participants gain an understanding of "what works" over time as they grocery shop, implement strategies they know to be consistently successful, and create ad hoc strategies if different needs arise. This infrastructure knowledge is linked to their food package, Allowable Foods List, and/or their flexibilities flyer, but informs their broader practice of grocery shopping and interacting with cashiers during checkout.

RGS' understanding of genre knowledge might be expanded to acknowledge the accumulated infrastructural knowledge gained in technologically mediated environments in order to account for "present" genres (like an Allowable Foods List) and "behind-the-scenes" genres (like the APL). In "Rethinking Genre from a Sociocognitive Perspective," Berkenkotter and Huckin define genre knowledge as

> a form of situated cognition embedded in disciplinary activities. For writers to make things happen, that is, to publish, to exert an influence on the field, to be cited, and so forth, they must know how to strategically use their understanding of genre. (477)

In this study, WIC participants gain genre knowledge embedded in their routine activity of grocery shopping. For WIC participants to make things happen, that is, to redeem their WIC benefits, avoid embarrassment and stigmatization from cashiers, managers, and other shoppers, and engage sustainable strategies for participating in the program long-term, they must know how to strategically coordinate people, texts, and technologies to their benefit to create moments of access. Even without a comprehensive knowledge of the intricacies of WIC's information infrastructure, WIC participants have an accumulated, embodied experience of the ways the information infrastructure (and its genres) affects them, and therefore knowledge of how to navigate it as part of their grocery shopping. It seems that having genre knowledge involves having infrastructure knowledge of some kind.

Additionally, this study of information infrastructure genres adds to understanding the nature and role of antecedent genres. A defining trait of information infrastructure is that it evolves from an installed base, and changes in small increments (Star 1999). For example, the existing MIS arrangement of texts, technologies, and processes was the installed base upon which paper-based benefit redemption existed, and the transition to EBT technology was informed and constrained by the existing MIS "base." The design and implementation of the APL as part of this transition, too, was informed and constrained by the existing MIS base—it would not have been possible, for example, for there to be one universal APL utilized by all WIC agencies, because of file size issues, differences in state level contracts with WIC technology partners, and different cultures of food eligibility strictness state to state. This incremental

evolution from an installed base occurs not only for pragmatic reasons, but also because of the culture – when WIC wants to change to "increase access" it's not a burn it down and start over approach; it's work to improve what already exists and is in place.

Tracing the emergence of the APL as part of this infrastructural change resonates with Jamieson and Campbell's study of Johnson's eulogy, which emerges from antecedent conventions and constraints ("Rhetorical Hybrids"). Johnson's eulogy of Kennedy must attend to the "interdependence of purpose, lines of argument, stylistic choices, and requirements arising from the situation and audience" (146) and the "institutional demands of [the] system" (151). Similarly, the APL (as part of the broader technological shift to EBT) must attend to key stakeholders' priorities for systems design and the rationale of the existing MIS and requirements for interoperability. While more theorization is necessary to be able to connect antecedent genres with information infrastructures' arrangements of texts, technologies, and human-directed processes, I think there are promising threads there to further explore. Tracing the emergence of genres in technologically mediated contexts like the WIC program through an infrastructural perspective may be a helpful way to track how antecedent genres influence technological innovation.

The Role of Writing Researchers

This study of the APL through an infrastructural lens may also lead to greater advocacy on behalf of writing researchers to enact change in public contexts. As Dylan Dryer explains in his analysis of Milwaukee's city zoning codes and citizen efforts to change them, a resistant reading of genre can

> take as its starting point the changes to the map and text that *do* work their way through the system. A cynical (or merely oppositional) reading of this might conclude that readers' gains in knowledge of the Code are always offset by continuous process of additions and modifications to it, and that this process of sanctioned rewriting… subordinates readers by keeping the accurate or 'true' copy of the Text in very few hands. But a resistant reading of this phenomenon would see the changes to the Code as changes in the condition that is the Code's self-professed objective to perceive clearly and to which it is supposed to respond adequately. *The fact that there is a sanctioned method of rewriting the Code is evidence of the contingent, mutable nature of the landscape and the people it is supposed to control*" (523, my emphasis)

Just like zoning codes, WIC's information infrastructure can and does change. There are sanctioned methods for doing so, like the transition to EBT benefit redemption. There are, too, sanctioned methods for changing the APL. Both WIC vendors and participants are encouraged to submit UPC for food items that are rejected that they believe should be WIC-approved, or are already WIC-approved through the "Request to Add a UPC to the Approved Product List" form. Additionally, most WIC state agencies conduct a two-year review of their APLs to determine if major revisions are needed (Jovi, personal interview). These routes for change show that the APL is not monolithic, but mutable. Additionally, changes are possible to cashier training for WIC transactions, a central site which could bring about significant infrastructural change. If, for instance, WIC cashiers were required to enter UPC that didn't scan through to the Request form, labor could be diverted from WIC participants and lead to more accurate documentation on APLs. Furthermore, permanent "flexibilities" might be implemented long-term for the WIC program, beyond the pandemic. These flexibilities could advocate that WIC participants deserve

substitutions for items that are unavailable, creating a less burdensome experience of visiting multiple grocery stores to fully redeem their benefits. These infrastructural changes don't intervene within the basic design of the MIS-EBT system, but could create more stable moments of access.

So, what is the role of the writing researcher in all of this? What are our responsibilities as a field to recognize, study, and advocate for infrastructural change within public contexts like WIC? As I explained in Chapter Two, I occupy somewhat of an interstitial space within WIC—not an administrator or staff member, not a participant, but someone who has applied more than once and ultimately deemed ineligible, and someone with a vested commitment to WIC "working" in support of family members, colleagues, and friends who benefit greatly from the program's services. As a writing researcher, the infrastructural complexities of the APL within WIC's EBT benefit redemption system is intellectually fascinating, especially in terms of genre. And, they are troubling. It is frustrating to research a problem, find a location of that problem, and not have clear routes to translate this research into effective, ethical action. This frustration is doubled in the midst of a pandemic, which isolates researchers from research sites and has so far prevented "in-person" qualitative research. This frustration also stems in part from studying information infrastructure—the invisible, technical arrangements that seem so out of reach.

Despite these challenges, studying the relationships between genres, infrastructure, and access must also be paired with action. As a way to translate the findings of this research to action through a participatory critical rhetoric approach, I am sharing these findings with the National WIC Association (NWA), the non-profit arm of WIC, in the form of a memo. The NWA invites research that pursues "understanding how WIC participants use technology and

[consider] barriers to technology access" ("NWA Research Needs Assessment"). As the NWA explains in their description of this research focus,

> Out-of-the-box thinking is also needed with regard to how WIC services are delivered. WIC has been progressively embedding technology into all aspects of the program. From EBT/e-WIC to online education, interactive texting, and use of apps and participant portals, the program is moving into the digital world. Evaluation of current technological innovations is needed. Research is also needed to better understand how WIC participants use technology and how new technologies designed to optimize WIC service delivery take into full consideration barriers to technological access. ("Understanding How WIC Participants Use Technology and Considering Barriers to Technology Access")

Additionally, I am currently designing a Research Findings infographic that will relay key findings from this study to participants. After talking with participants, we decided that would be an easy way to visualize findings and create something that was shareable. And lastly, this infrastructural knowledge of how WIC "works" at the point of sale is something I'll carry with me in my everyday life. While I was not able to collaborate with a local WIC clinic, like I had originally arranged for this study, there are possibilities to take up this work again when it is safe to do so, and when WIC clinics operate in-person again.

Part of the goal of this study was not only to understand issues of access within WIC, but to locate potential routes for innovation and intervention where positive changes could be made. I outline these routes for innovation and intervention below. These innovations and interventions will be summarized both as part of the NWA memo, as well as outlined in the Research Findings infographic in order to share with WIC administrators and staff, as well as program participants, potential ways for this research to extend into local, as well as national, action.

Routes for Innovation and Intervention

There are routes for innovation and intervention within the WIC program that work "within" the current infrastructural arrangement of the MIS-EBT systems, as well as "against" the current arrangement that require small, but meaningful changes. As described in Chapter Two, a critical participatory rhetorical approach "affords critics the opportunity to stand with, for, and among the people whose rhetoric we study … [providing] a means to account for the rhetoric of the everyday, to locate rhetoric in relationship to broader cultural discourses, and to open space for critics to analyze, participate with, and contribute to an emancipatory form of critique" (*xiv*). By bringing into conversation the infrastructural inversion of the APL with interviews with WIC participants, I was able to understand how the APL mediates their grocery shopping experiences, and importantly, how it seems affect the women of color and disabled people I interviewed differently.

From this analysis, I was able to locate possible routes for innovation (changes "within" the current infrastructural arrangement) and interventions (changes "against" the current infrastructural arrangement). In the following section, I describe two examples of innovations, Nevada and New Hampshire's unconventional benefit redemption systems, that have emerged as solutions during the pandemic. Then, I suggest a potential intervention, improved cashier training, that I argue would intervene within the existing infrastructural arrangement established by the APL by shifting time and labor away from WIC participants during benefit redemption. Genres, and infrastructures, and information infrastructure genres like the APL, are very difficult to simply tear down and change—they are sedimented, social, and evolve incrementally. Thus, I propose changes to the use and implementation of the APL as it exists already. In the next

section, I outline innovations and interventions that I argue showcase beneficial uses and implementations of the APL.

Innovations

During her interview, Jovi, the WIC Director, explained the intractable situation WIC agencies are in when the need for infrastructural change is clear, but routes to change are beyond the program's control. She used online ordering and curbside pickup as an example, options that are currently unavailable for WIC benefit redemption:

> For instance, online transactions and curbside pickup, if you ask [WIC agencies] to accommodate this, [the USDA and FDA] say sure, there's nothing in the regulations to prevent this, go for it. But then it's actually just not possible. It's actually just like buying 48 oz. juice for women in the program, it's allowable from WIC to issue 48 oz. juice on the APL and list it on their Allowable Foods List. It doesn't exist. Food manufacturers don't make 48 oz. juice. So you put it on the List, but people can't buy it.
>
> The system, we don't really have control over it, in a way. The government will say, oh sure, we allow it. Go for it. Talk to your stores. But the stores don't have the technology. And it's the middle of the pandemic, they're not going to do that.

Therefore, APLs can be troublesome not only because they may not accurately document the full range of eligible food items, a given APL may also document eligible food items that don't actually exist, that aren't actually produced by food manufacturers. While state agencies can add food items to the APL to certify and document eligibility, this doesn't ensure long-term availability or production of this item.

Jovi's explanation highlights the difficulty of coordinating innovation within WIC's information infrastructure as it relates to EBT technology. Even though WIC administrators like Jovi know there is a need to implement more flexible solutions for grocery shopping during the pandemic (and in general), their agency is constrained because the technological arrangement of cash registers, scanners, and PIN pads in the grocery store are not under WIC agency control; grocery stores coordinate with WIC technology partners for their technology. Therefore, coordinating more flexible benefit redemption systems ultimately depends on vendor enthusiasm and decision-making. In the following section, in order to showcase what kinds of changes are possible for promoting more stable moments of access for WIC participants, I outline two examples where vendors have taken the initiative to implement more flexible benefit redemption systems within WIC's existing information infrastructure. Then, I suggest possible infrastructural changes that are possible within WIC and the broader role of writing researchers advocating for and participating in these kinds of changes to information infrastructures in public contexts.

Nevada Home Delivery Program

Nevada's home delivery program is an example of an innovation, which maintains the current function of the APL as an "adjudicating" genre but creates more stable "when" moments of access for WIC participants by allowing proxy shoppers to redeem their benefits while they stay at home. This innovation doesn't change the MIS-EBT system, but allows WIC participants to avoid the heightened visibility and conflict that can occur at the register.

In the first months of the pandemic, beginning March 2020, the Nevada WIC state agency identified a significant drop in food redemption for Nevada WIC participants, with over 40% sometimes, rarely, or never redeeming their benefits ("WIC Shopping During COVID-19").

Participants identified a lack of available eligible WIC food items, inflexible benefit redemption options, and fear of illness as the primary reasons identified for not redeeming benefits. The Nevada state agency reported that since "the processing functionalities on the back end of WIC are more complex than SNAP and TANF, the technology, buy-in and funding to combat this barrier [inhibited] development and rollout of a WIC online ordering model" (7). In order to circumvent this limitation, Nevada WIC drew on CARES Act funding, which provides financial support for state, local, and tribal governments during the pandemic. With this funding, Nevada WIC implemented a home delivery program for participants. This program consists of WIC families filling out a consent form to enroll in home delivery, matching families with a "proxy shopper," scheduling a drop off time, and receiving their food items. In order for this process to work, WIC agencies issue a "proxy shopper" EBT card that is picked up and dropped off at the family's local WIC clinic for safekeeping. Proxy shoppers came from various non-profit agencies.

This home delivery program exists within the current MIS-EBT information infrastructure relationship with EBT technology that permits EBT benefit redemption. No changes were made to the role of the APL in implementing this program; instead, proxy shoppers simply substituted in for the shopping and checkout processes for WIC participants. Through tracking the effectiveness of the home delivery program, Nevada WIC found that benefit redemption significantly increased. Although it's very likely that proxy shoppers experienced some of the same difficulties as WIC participants navigating the food shortages and tense grocery shopping climate introduced by the pandemic, the home delivery program still enabled WIC participants to avoid expending time and labor grocery shopping, as well as potential conflict at the cash register during checkout. While this study did not include participants from

Nevada, testimonies available through Nevada WIC attest to participants' preference for home delivery, not only during the pandemic, but because of pre-existing constraints, like the difficulty of shopping with children, challenges finding the time to grocery shop and find the right WIC items, and driving long distances to WIC-eligible grocery stores ("Participant Feedback and Stories"). Nevada WIC is currently working to permanently implement some form of home delivery for their WIC participants because of this overwhelmingly positive feedback and the recognized need for better "shopping improvements ... to help participants redeem WIC foods safely and effectively" (30). It is unclear to what extent home delivery will be permanently implemented beyond the pandemic, however.

This example of innovation within existing information infrastructures evidence that positive change can happen even within bureaucratically "locked-in" arrangements of technologies, people, and standard processes. Additionally, it shows that an information infrastructure genre like the APL, while problematic for many WIC participants during in-person grocery shopping experiences, doesn't have to be a source of undue stress and additional labor. Because proxy shoppers shopped in place of WIC participants, WIC participants didn't have to make decisions about increasing their visibility in order to redeem their benefits. While purely speculative, I also guess that WIC-approved proxy shoppers may have benefitted from the institutional authority they brought with them as de facto WIC staff during the process of benefit redemption. At the very least, they didn't carry with them potentially months, or years, of difficult experiences negotiating with cashiers and managers, along with a history of embarrassment or stigmatization.

Of course, ideally, WIC participants should be able to grocery shop and redeem their benefits consistently, without the problems outlined throughout this study. However, the home

delivery program does serve as a helpful example of thinking "outside-the-box" even within in bureaucratically sedimented infrastructures. Overall, implementing home delivery within an EBT benefit redemption method system required a willingness of people from nonprofit agencies to help grocery shop, WIC clinics to issue new eWIC cards and create enrollment forms, and WIC participants to enroll. From that point, WIC clinics had to input proxy shoppers as "proxies" in the existing MIS interface, deactivate families' old eWIC cards, and keep track of proxy shoppers' successful deliveries. It took time, work, and enthusiasm from people to resolve this problem, but not a massive overhaul of WIC's infrastructure.

New Hampshire Online Ordering

Likewise, New Hampshire's online ordering options required an unconventional approach within WIC's existing infrastructure. Select grocery stores, part of the Grimmel's[1] chain, currently allow online ordering for WIC participants through their mobile shopping application. WIC participants add food items to the cart, click "WIC" for payment mode, and wait to pay for their food items until curbside pickup. Grocery store staff bring a participants' WIC card and backup debit card into the store, enter the participants' PIN, pay for any leftover items with the debit card, and bring participants' items to their car. As Lavender, a New Hampshire WIC participant, describes in Chapter Three, there are problems with this benefit redemption option, including not being able to know what was WIC-approved by the register until the transaction has already been processed. However, this is another example of innovation

[1] Pseudonym

within the EBT benefit redemption system that still may contribute to more stable moments of access for WIC participants. Because participants are not obligated to enter the grocery store and navigate it in-person, issues of finding eligible food items and experiencing conflict at the register is avoided. Like Nevada's home delivery program, New Hampshire's online ordering operates within existing infrastructure and works to shift some of the burden of shopping and checkout away from WIC participants to other people (proxy shoppers and grocery store staff). And while it would certainly be more ideal for participants to be able to use Grimmel's app and be immediately notified of WIC eligibility of food items, this would require interoperability between the APL and the app itself, a significant infrastructural change. Instead, online ordering works within the current configuration of EBT technology and APL functioning as is.

Interventions

This qualitative study of the APL reveals that during benefit redemption, checkout is the site of power, conflict, and heightened visibility and marginalization of WIC participants. Improved cashier training would intervene within this existing infrastructural arrangement and could produce more stable "when" moments of access for WIC participants and address the racism, sexism, and ableism that seems to perpetuate from interactions mediated by the APL between cashiers and WIC participants.

WIC cashier training is designed by state agencies and documented, often in the form of a cashier training manual. These manuals provide cashiers with an introduction to the WIC program, an overview of WIC approved foods, and an explanation of how to process WIC transactions. While a comprehensive analysis of training manuals across every WIC state agency would be necessary to make definitive claims about common characteristics, a preliminary

glance at the training manuals from the states WIC participants interviewed for this study reside (Florida, Kansas, Kentucky, Massachusetts, New Hampshire, New Jersey, New York, North Carolina) show that these manuals usually include a "Troubleshooting" section for dealing with problems that arise at the point of sale. For example, in Kansas' cashier training manual, there is a "What if…?" section that addresses questions like "What if the WIC participant insists that an item is WIC approved, can I 'override' the register system to allow the item as WIC?" (15). The manual states "No, the register system will not allow an 'override.' All approved WIC item UPC barcodes are downloaded daily into the register system. If an item is not ringing up as WIC approved, it may not be part of the participant's benefit, it may not be WIC approved, or it may need to be added to the Approved Product List (APL)." The manual also mentions "If a product needs to be added to the APL, contact your manager or store supervisor. They will then provide the product information to the State WIC agency" (13).

This described process is problematic for several reasons: 1) It provides no route for WIC participants to receive food that may be WIC eligible in that moment; 2) It places the responsibility of submitting the UPC for a WIC food item on a manager or supervisor, a third party who may not have a sense of urgency about filling out the lengthy "Request to Add an UPC to the Kansas WIC Approved Product List" form for every item that doesn't scan through; and 3) It ultimately upholds the APL as the ultimate authority, even though it may be an outdated version or a version that hasn't yet documented an eligible food item. Cashiers, even in their powerful role in this situation, are not prompted to advocate for WIC participants in this process. Improved cashier training might include updates to this process. I suggest the following language that could be included in cashier training manuals:

1) If a WIC transaction fails, you are obligated to fill out as much information on the "Request to Add an UPC" form (available in the office and under the register) as you can. When you have filled out this information, pass this form along to your manager or supervisor. Your manager or supervisor is required to follow-up with the WIC state agency about the status of this food item. When they have received an update from the agency that the food item is in the process of being approved, this item will be added to your "flexibilities" list. When the next WIC participant brings this food item to checkout, consult your "flexibilities" list and call a manger or supervisor to the register. The manager or supervisor will approve this food item as an appropriate WIC substitution item.
2) If a WIC transaction fails, you are responsible for providing WIC participants with excellent customer service as you resolve the issue. Request backup at the register if you have a line forming behind the WIC participant in order to prevent a stressful checkout experience. If the WIC participant needs assistance finding an eligible food item, request support from staff on the floor to find an item. If the WIC participant believes the item is WIC eligible, check the Allowable Foods List, and scan the item again. If this item should be included on the APL, let the WIC participant know you will submit this food item for approval. Then, consult your manager or supervisor, who will either approve this food item as an appropriate substitution, or find another eligible food item. You are responsible for supporting WIC participants' benefit redemption.

These updates make several key changes to the existing process for Kansas WIC cashier training. Cashiers are asked to be proactive about filling out the "Request to Add an UPC" form and prompting their manager or supervisor to submit this completed form to the WIC state agency.

Additionally, this process draws on existing allowances of WIC EBT technology—although training manuals tend to state that overrides are "not allowed," substitutions are now allowed because of the "flexibilities" implemented during the pandemic to respond to supply chain stocking issues of eligible WIC food items ("COVID-19 Information for WIC Families"). It is unclear why most training manuals seem to not have been updated in the last year to explicitly outline this allowance, and is reinforced by the interview data, where participants mentioned their Flexibilities flyers were not being honored by cashiers. Adjusting cashier training to require honoring eligible WIC food items as they are being processed by WIC state agencies and being added to the APL would create a stopgap measure for insuring access to these food items, creating an infrastructural "bridge" that enables successful benefit redemption.

Additionally, this updated cashier training works to address the stigmatizing experience of a failed WIC transaction. While this stated process would not necessarily automatically result in an improved checkout experience, including specific language in the cashier training manuals that requires cashiers to try to problem-solve may help shift time and labor away from WIC participants and create more stable "when" moments of access. Currently, cashiers seemed to be placed largely in a passive role, responsible for relaying the success or error message from the cash register to the participant. Placing cashiers in the role of a proactive advocate and problem-solver for WIC participants would be a meaningful infrastructural intervention, creating improved routes for keeping the APL up-to-date and supporting benefit redemption. Like Lilah and Jackson's excellent customer service experience with Callie, WIC participants would benefit from cashiers that were "on their team" instead of in a policing or adjudicatory role. Placing cashiers in a more active role would also help to increase cashiers' understanding of the precariousness of a failed WIC transaction, particularly for women of color.

While the APL isn't to blame for every issue of access in the WIC program by any means, it plays an influential role in shaping access during checkout. Ideally, food manufacturers, vendors, WIC state agencies, and WIC's federal offices would coordinate closely with one another to ensure optimal documentation of eligible APL items. More ideally, the entire MIS information infrastructure connected to the EBT technology would be designed with the top priority of successful benefit redemption, meaning that APL maintenance would be one of the most important mechanisms of infrastructure work. These are big, overhaul changes that would address the root of the problem in a direct way. These aren't impossible changes, but admittedly, I cannot describe how they would happen. Thus, they are not necessarily impractical or unfeasible, but in my role as a writing researcher and not as a WIC administrator or staff member I'm unable to outline specifically how this coordination would take place through implementation at the state level.

In the next section, I highlight areas for further research that explain both the "gray areas," like modifications that would change the basic functions of the APL, or that need more investigation, as well as the broader connections between genre, infrastructure, and access that need to be further explored. I explain where I see this qualitative study going next, as well as explain what I see as promising routes for research that may be taken up within writing studies.

Areas for Further Research

In my experience, studying genres always leads me to more questions than when I began. Now that I've added infrastructure to the mix, even more questions have emerged. This study utilized convenience sampling, in part to be able to carry out a qualitative study during a time of social distancing, quarantine, and relative isolation. When the world returns to the "new normal,"

I'd like to be able to carry out an ethnographic study to be able to observe WIC grocery shopping as it happens in real time—to understand how shoppers navigate signage and shelf organization, WIC-Approved labels, food item packaging and branding, as well as observe the intricacies of participant-cashier interactions at checkout. With an ethnographic approach, I would be better able to further develop the theory of genres as the "when" of infrastructure, "when" access happens. This participant observation would add to the data already collected from this study and help test this theory in action.

Overall, further research is needed to understand the relationship between genres, infrastructures, and access. The APL is just one example of an information infrastructure genre that wields significant influence in interactions like ones between cashiers, managers, and program participants where power imbalances exist. Because each concept (genre, infrastructure, access) is complex and interrelated, yet distinct, more work is needed to develop a more robust theory of the ways they relate—genre infrastructures? Infrastructural genres? Infrastructures as access points? Can infrastructures ever not include genres, and vice versa? This study embraced the productive theoretical overlaps between genre and infrastructure in order to study access, but it was difficult throughout to not conflate these concepts and collapse distinctions between them. This study highlights that genres, infrastructures, and access are complicated and need more attention.

Additionally, further research is needed in public contexts like WIC. Unlike other contexts, like the classroom or corporate office, the WIC program is a diffuse site that participants navigate largely as a family unit. WIC participants must learn to navigate the bureaucratic "system" with the assistance of WIC administrators, staff, and vendors, but likely grocery shop with other family members or alone. Better understanding the infrastructures that

underlie and influence other government assistance programs, like the Supplemental Nutrition Assistance Program (SNAP) and the Temporary Assistance for Needy Families (TANF), would add to this work, especially since families may participate in more than one government assistance program at the same time and may navigate multiple information infrastructures simultaneously as they grocery shop and carry out other everyday activities. More broadly, understanding other public sector information infrastructures and their "behind-the-scenes" genres may shed light on other "systems" that work to address homelessness, crime, housing insecurity. Understanding if and how inequality is "built into" these kinds of systems by looking at information infrastructure genres would be a way to locate where issues of access begin by design.

More broadly, I think it would be beneficial for writing studies to revisit some of the commonplace sites of genre analysis and introduce an infrastructural perspective in order to foreground issues of access. For instance, what would it look like to map the information infrastructures that underlie composition course design? Or research practices across institutional and disciplinary contexts? Recalibrating these sites of genre analysis may reveal more about genre knowledge, genre performance, and antecedent genres, as well as more about how issues of access emerge from relationships between genres and technologies.

This study ultimately produced implications, rather than conclusive findings, about the ways gender, race, and disability influence WIC participants' experiences of navigating "the system" as mediated by the APL, and more work is needed to understand how information infrastructure genres uphold and perpetuate systemic inequality. As I move forward with this research, this is my primary goal for this project as it evolves beyond the dissertation. It is important for writing researchers to know the relationships between genres, infrastructure, and

access because knowing these relationships locates where, when, and why women of color, disabled people, and other historically marginalized groups are further marginalized, and how. Understanding "the system" in all its technical complexities and historical context is the first step in locating when access happens, and what innovations and interventions are possible for creating more stable and sustainable access for everyone.

Conclusion

I set out to understand more about issues of access within WIC—why participation rates were decreasing, why everything seemed so complicated. I ended up learning how cash registers work, how supply chains work, and most generally, how information is stored, managed, and shared across different levels of organizations. Because of the pandemic and the infrastructural breakdown of my research plans, I also learned how much I likely would have missed from relying on participant observation, interviews, and text analysis. The infrastructural deep dive this project took led me in unexpected directions, and to the stories of people I would not have reached out to otherwise. I'm grateful to Lilah, Jackson, Kassandra, Lourdes, Adaline, Lavender, Brianna, Victoria, Harmony, and Nina for sharing their experiences and expertise navigating "the system," and to Jovi, Marcus, Kailey, and Beth Ann for their willingness to talk about their work as WIC administrators and vendor representatives. The expertise of these WIC participants, administrators, and vendor representatives sheds necessary light on the relationships of writing, technology, and access and their consequences.

Infrastructures, and genres, and information infrastructure genres, can be hard to change. They are the building blocks of institutions, which, unsurprisingly, are also hard to change. However, as Porter et al. argue, "though institutions are certainly powerful, they are not

monoliths; they are rhetorically constructed human designs (whose power is reinforced by buildings, laws, traditions, and knowledge-making practices) and so are changeable. In other words, we made ‘em, we can fix ‘em” (611). Understanding information infrastructures, and how they work and work against people, and how, when, and why they were designed that way (and by whom), is the first step in bringing about this change, to transform barriers into bridges.

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Appendix 1: Interview Protocol

Interview Questions for WIC Staff, Administrators, and Vendor Representatives

1. What technology does the WIC program use for their day-to-day operations?
2. What innovations or changes have come to the program in the last five years?
3. What changes will happen with the implementation of EBT?
4. What role does technology play in your job?
5. How do you see access to technology affecting WIC participation?
6. What are the biggest challenges WIC participants face when: a) getting enrolled in the program; b) participating in the program; and c) phasing out of the program?
7. Do you see technology change as beneficial to the program- why or why not?
8. What encourages you about the current structure of the WIC program?
9. What frustrates you about the current structure of the WIC program?
10. How would you describe the role of technology in the WIC program as a whole?

Interview Questions for WIC Participants

1. What has it been like participating in the WIC program? What has been easiest? What has been hardest?
2. Do you use a phone, tablet, or computer to get things done for WIC?
3. Do you use any of the WIC apps? Why or why not?
4. What does your normal look like participating in WIC?
5. What is your normal meal planning and grocery routine?
6. How do you go about scheduling appointments for WIC? Is that easy or difficult?
7. What does it look like for you to complete WIC nutrition classes?

8. What would you change about the WIC program?
9. Are there rules or regulations in the WIC program that you find challenging or frustrating?
10. Do you use the EBT system in WIC? Did you use to use a paper check system?