CONSUMER PRACTICES: RECOVERING AND REPAIRING DAILY COMMUNITY LIFE

by

KIVALINA E. GROVE

A DISSERTATION

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Student: Kivalina E. Grove

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This dissertation has been accepted and approved in partial fulfillment of the requirements for the Doctor of Philosophy degree in the Department of Marketing by:

Linda L. Price	Chairperson
Joshua T. Beck	Core Member
Alan D. Meyer	Core Member
Sara D. Hodges	Institutional Representative

and

Krista Chronister	Vice Provost for Graduate Studies

Original approval signatures are on file with the University of Oregon Division of Graduate Studies.

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DISSERTATION ABSTRACT

Kivalina E. Grove

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Title: Consumer Practices: Recovering and Repairing Daily Community Life

Consumers engage in a multitude of daily practices which contribute to their individual and community wellbeing. I take a multi-method approach to investigating three consequential and interrelated consumer practices with important implications for wellbeing at an individual and community level. In the second chapter, I uncover a new multi-stage theoretical process, practice recovery, in my investigation of how consumers recover or return to practices they have previously abandoned. I examine this process and the potential difficulties inherent in it, in the context of young adults recovering the practice of bicycling for transportation on a college campus, a practice which promotes individual, community, and environmental wellbeing. In the third chapter, I examine and test the model I uncovered in Chapter II in the context of an individually held consumer practice which was interrupted at a community level, namely consumers' gym exercise practices during the COVID-19 pandemic. Working with community stakeholders, I problematize the model of practice recovery and examine this consumers' actual and anticipated recovery of these consequential health practices. In the fourth chapter, I examine how individual consumer practices contribute to community wellbeing through examination of user-maintainer repair practices of a bicycle sharing platform. I uncover emergent commons-based peer production at a community level, carried out through individual practices of

stewardship which contribute to the repair of the bicycle sharing platform, which is perceived as an inalienable community wealth, despite its underlying market motivations. In closing, I reflect and provide recommendations on the challenges and opportunities of conducting community-focused research.

This dissertation includes previously unpublished co-authored material.

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To my family, who have inspired, encouraged, and believed in me every step of the way.

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CHAPTER I

INTRODUCTION

Consumers' everyday lives are filled with a multitude of interconnected practices that contribute to their wellbeing at an individual and community level. In this dissertation, I take a multi-method approach to investigating three consequential and interrelated consumer practices with important implications for community and individual well-being.

The following chapter, "Consumer Practice Recovery: Remaking a Performance Under Changed Circumstances," uncovers and elaborates a new theoretical process, practice recovery. Consumers often attempt to recover practices, whether it is returning to school after years in the workforce, or trying to pick up running again. Practice recovery speaks to how consumers attempt to return to these previously abandoned practices, and how they adapt to the changes in practice conditions, elements, and surrounding practices that have occurred in the time since they last enacted these practices. In this chapter, I uncover a multi-stage process of practice recovery in the context of college students recovering the practice of bicycling for transportation in a university community, a practice widely promoted in the community and on many college campuses as furthering individual, community, and environmental wellbeing. I also identify four alignment gaps within the practice recovery process, areas where risks of misalignments are high, and active negotiation is needed to overcome these gaps. Additionally, I underscore the importance of recognizing the multi-level nature of practices, considering the individual enactment of a macro practice as nested within a contextualized performance space and meso-level practice with their own distinct practice elements and teleoaffectivity. This chapter reveals how contextualized practice recovery is, and how highly situated it is in both prior experiences

and contemporary practice conditions. This chapter has received a revision request at the Journal of Consumer Research, and is co-authored with Linda L. Price. Throughout this and the subsequent co-authored chapters, I use 'we' throughout as journal convention.

The third chapter, entitled Practice Disruption: Anticipating Practice Recovery Following a Community Interruption, examines and tests the model presented in Chapter II in the context of an individual consumer practice that was simultaneously interrupted and forced into abandonment at a community level. Specifically, I work with one non-profit and two for-profit gyms to examine consumer exercise practices and the impact of the COVID-19 pandemic. In early 2020, lockdowns caused gyms to close, which has had an incredible impact on the fitness industry, as well as consumer health and well-being. In this chapter, I examine consumer exercise practices before and during the COVID-19 pandemic and look forward to consumers' anticipated recovery of these healthy and consequential exercise practices. I find support for the model outlined in Chapter II, and outline three multi-level practice shift paths observed following gym exercise practice abandonment. Further, I problematize consumers' anticipated or actual attempted practice recovery looking forward, outlining the issues and themes our participants encounter as they envision or attempt to return to their abandoned practice, paralleling the alignment gaps uncovered in Chapter II. This chapter is co-authored with Linda L. Price and Sara D. Hodges.

This work on practice recovery leads into the next chapter in my dissertation, "Consumer Practices of Distributed Maintenance in Access-Based Consumption Platforms," in which I examine an interesting context that arose during data collection for the second chapter. During the time I was interviewing college students who were recovering the practice of bicycling, a bicycle sharing program was introduced to Eugene. This new market structure made recovering

the practice of bicycling much more accessible than before, and I saw a dramatic increase in the number people bicycling in Eugene. As I investigated practice recovery in this context, I encountered another unexpected consumer practice occurring, the so called "bike bounty hunters" who repair the bicycle sharing system by returning and redistributing bikes within the system. Their very presence is unexpected in many ways, since previous research points to the importance of ownership for repair and maintenance, and stewardship of public goods is notoriously difficult foster, especially in the context of a program that is widely and visibly utilized by many people. Because repair and maintenance is so costly for these access-based platforms, fostering this prosocial consumer behavior is crucial to ensuring the financial viability of these systems. In this chapter, I examine these consumer practices of distributed repair in the access-based bicycle sharing program in order to understand how repair is carried out, motivated, and how it functions within the larger system and established dedicated maintenance regime. I suggest this repair is an example of emergent collective commons-based peer production through individual stewardship behaviors over the platform, which is viewed as an inalienable community wealth, despite its underlying market motivations. My co-authors for this chapter are D. Matthew Godfrey and Linda L. Price.

Finally, in the concluding chapter, I reflect on the challenges and opportunities of conducting community-focused research, and provide recommendations for future researchers who hope to undertake such efforts. Together, these chapters speak to consequential consumer practices which help to repair and recover daily practices and foster individual and community well-being, through bicycling, exercising, and engaging with repair of an inalienable community wealth. Each chapter examines how socially situated individual practices contribute to individual and community wellbeing and demonstrates the complex interplay of both. Together, these

chapters offer significant contributions to practice theory and yield important practical implications at an individual and community level.

CHAPTER II

CONSUMER PRACTICE RECOVERY: REMAKING A PERFORMANCE UNDER CHANGED CIRCUMSTANCES

Co-authored material (with Linda L. Price), currently revising for resubmission to the Journal of Consumer Research. Data collection and writing was performed entirely by me with my coauthor providing editorial assistance.

Throughout their lives, consumers often attempt to return to an abandoned practice. A consumer might decide to pick up an instrument they haven't played in years, take up knitting again, or return to running. More extreme instances of practice recovery make the news, such as the so-called 'Granny Globetrotter', Kay Seamayer, who started playing basketball again at 65 (Batsell 2007), or Jack Skelland, who passed his Grade Three piano exam in 2019, after giving up the instrument in the 1940s (Roberts 2019). Many consumers have on-and-off-again relationships with practices throughout their lives. For example, Suzanne, an informant in Schau, Gilly, and Wolfinbarger's (2009, 270) research exploring consumer identity renaissance in retirement, recalls how she returned to the practice of crafting throughout her life, "When life got busy, I gave it up, but I always come back to it when I have time."

The difficulty of practice recovery across all aspects of consumer lives has been foregrounded by the COVID-19 pandemic. Social interactions that used to be second nature are fraught with awkwardness, as John DeLeon experienced in a recent game of golf, "on the 18th green it is traditional that you stick your hand out and you take your hat off and you shake hands with who you played with… And we just kind of stared at each other and fist-bumped and

walked off" (Hollingsworth 2021). Consumers and professionals alike are discovering their interrupted practices are not as easily recovered as they might anticipate. Olaganathan and Amihan (2021) observed a tenfold increase in aviation safety incident reports linked to lack of proficiency during the pandemic. As a pilot on the anonymous ASRS database wrote in an unstable instrument approach report, "I was legally IFR current, but, as it turned out, I was clearly not proficient. The COVID-19 prevented me from… getting recent practice" (Aviation Safety Reporting System 2022).

Attempts to recover a practice frequently occur under changed conditions—that is, where some or all of the practice's constituent elements of competencies, meanings, and/or materialities have shifted (Shove, Pantzar, and Watson 2012). Stephanie Howe, an elite ultrarunner, recounts trying to recover the practice of running following a surgery that shifted her competency, "when it came time to start trying to run again, I felt good and was able to slowly progress because I had no expectations. By that point, I was kind of like, "If I can't race again, that's okay. I just want to be able to run again. I miss this so much." (Huber 2017). But consumers also struggle to recover practices less contextualized by competency. While consumers might have the rudimentary competency to put together a puzzle, they have trouble recovering the meanings and materiality of the practice: finding space to lay out the pieces, what to talk about during assembly, and the way in which the practice itself feels unproductive.

Our investigation of practice recovery occurs in the context of young adults recovering the practice of bicycling for transportation in a university community. In the U.S., bicycling as a mode of transportation is frequently abandoned in adolescence (Underwood et al. 2014). Starting college, young adults often attempt to return to bicycling as a mode of transportation, with over 50% of college students reporting riding a bike in the last year (American College Health

Association 2018). Bicycling as a mode of transportation has numerous advantages both for the commuter and for society, including increased physical activity and decreased pollution and fatalities while increasing city traffic capacity (Macmillan et al. 2014). Businesses and cities benefit too, with the New York City Department of Transportation (2012) demonstrating that the addition of bicycle lanes increased adjacent retail sales by up to 46 precent.

We situate our investigation of practice recovery at a meso level, in between the cultural macro social practices (e.g., bicycling), and the micro-level individual practice performances, with their emphasis on emotions and embodiment situated within a particular context (e.g., Joe who bicycles in New York City). While much past work in practice theory speaks to how social practices are formed (Shove, Pantzar, and Watson 2012; Nicolini 2012), the extant literature does not account for how practices are recovered, how consumers return to a former practice following a significant gap in enactment during which meanings, competencies, and materiality may have shifted. When a consumer engages in practice recovery, how is the practice recovered, and what elements comprise that recovered practice? What kinds of misalignments does the consumer experience (material, competence, and meaning), and how do they navigate those misalignments? In this research, we introduce and detail this process of practice recovery. In doing so, we reveal how the alignment of practice elements shifts across meso practices, contextual practice settings, temporalities and embodiments, as well as how the elements and practice as a whole interact with the surrounding practice world.

Theoretical Foundations

We contribute to practice theory by introducing the process of practice recovery to the conceptualization of practice formation and abandonment (Shove et al. 2012). We first synopsize current knowledge on how practices are formed, disrupted, and abandoned through the connection, separation, and misalignment of their constitutive elements and surrounding practices, before introducing and distinguishing practice recovery.

A Brief Overview of Practice Theory

Practice theories examine the performance of social life through a series of practices (Schatzki 1996). A practice can be conceptualized as a "a routinized type of behavior which consists of several elements, interconnected to one another: forms of bodily activities, forms of mental activities, 'things' and their use, a background knowledge in the form of understanding, know-how, states of emotion and motivational knowledge" (Reckwitz 2002, 249). Practices are paramount to social life because they are "the site where understanding is structured and intelligibility articulated" (Schatzki 1996, 12). At their core, practice theories serve to describe how social life is produced and reproduced through individual practice enactments (Bourdieu 1977; Giddens 1984). Crucially, practices are recursive, in that the enactment of a practice at an individual micro-level can consist of a multitude of differing actions within the practice performance, but the social practice as a larger macro-level entity, or "pattern" which individual performances follow, exists as a result of these successive individual performances and enduring interconnections between practice elements (Shove et al. 2012). An individual engaging in a practice enactment is a carrier of that practice, and the various interconnected practice elements

are not proclivities of the individual, but "elements and qualities of a practice in which the single individual participates" (Reckwitz 2002, 250). However, practices are not just faithful reproductions of the overarching practice pattern, as individuals are "active and creative practitioners" in practice performances, meaning that the social practice as a larger entity both informs and is informed by individual practice enactments (Shove and Pantzar 2005, 45).

The interconnected elements of a practice can be more concisely conceptualized in three parts: (1) materials, such as things, technologies, or objects, (2) competencies, such as skills, knowledge, or techniques, and (3) meanings, such as ideas or emotions (Shove et al. 2012). In their description of how practices come to emerge, exist, and die, Shove et al. (2012) outline three stages of practices; proto-practices, in which links between the three elements of materials, meanings, and competencies have not yet been created; practices, in which the links are made and maintained between these three elements; and ex-practices, in which these links are no longer maintained. Practices are formed by interdependent relationships between these three elements, such that without continued linkages between materials, meanings, and competencies, practices are not sustained (Shove et al. 2012). A social practice then becomes an ex-practice if linkages are no longer sustained by a pattern of individual practice enactments.

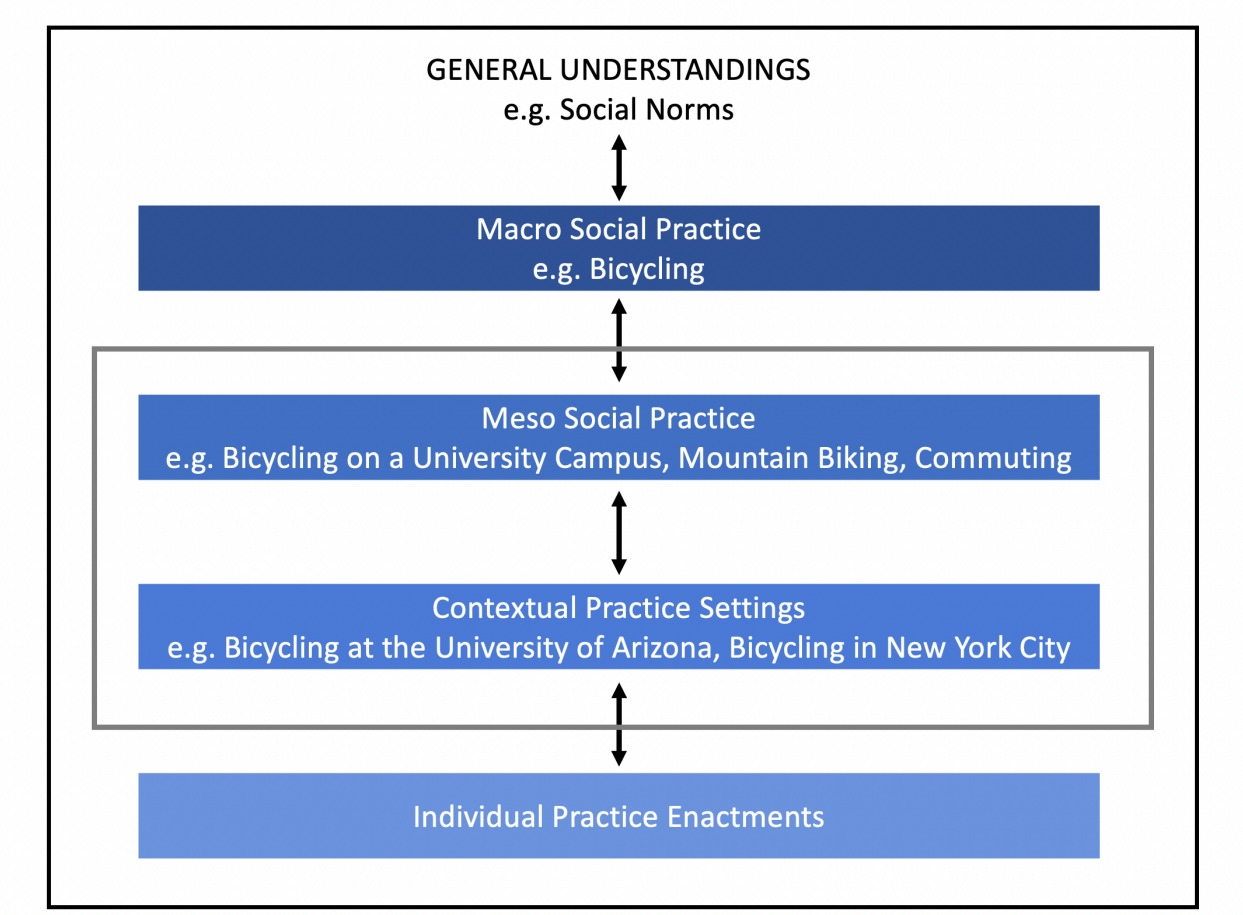
A Multi-Level Perspective

Social practices occur at multiple levels. Along the lines of Akaka, Schau and Vargo's (2022) investigation of practice diffusion, we take a practice theoretic approach that emphasizes the multi-level relationship between social practices at the macro, meso, and micro levels (Shove et al. 2012; Schatzki 2019). As Figure 2.1 illustrates, macro-social practices are informed by general understandings, which are common across many practices (Schatzki 2002; Warde,

Welch, and Paddock 2017). However, it is important to distinguish that general understandings do not exist separately from practices. As Gram-Hassen (2021) argues, a "general understanding is not a distinct ontological level, but intersects with specific formations and configurations of practices." A macro-social practice contains consistent components of the social practice that are common across the meso-social practices it encompasses. However, these meso-social practices are also distinguishable from each other by their unique teleoaffective structures, which we discuss further below. Meso-level social practices then contain individual practice enactments, as nested within their contextual practice settings. The distinctive positioning of these meso-level practices emphasizes the importance of their consideration, as their outcomes uniquely influence both micro-level actions and macro-level practice structures (Akaka et al. 2022).

Considering our focal practice of bicycling, for example, some elements are consistent and common across many meso and contextual bicycling practices, whether bicycling in Canada or India, on a bike or trike. However, this umbrella of bicycling as a practice subsumes many diverse and distinct meso-level practices. One need look no further than mountain bicycling and road racing to realize mastery of one practice does not guarantee an easy transition to the other. Even within a meso practice like bicycle commuting, contextual practice setting matters: practice enactment in Copenhagen is vastly different from practice enactment in London (Larsen 2014). Thus, while it is oft repeated that 'you never forget how to ride a bike,' shifting between context or meso social practices can create vast disjunctures in individual enactments, and difficulty in attempts to recover what is generally understood and experienced as the same macro practice.

Figure 2.1. A Multi-Level Perspective on Social Practices



Practice Environment

Practices do not occur in a vacuum. Consumers engage in numerous practices on a daily basis, and as a result practices bump up against and impact each other in the larger practice world (Warde 2005; Spurling et al. 2013). Surrounding practices can influence, or in the case of competitive practices, even replace each other. Competitive practice collisions often occur within the same macro-level practice. For example, within the macro practice of listening to music, the meso practice of purchasing physical albums was first replaced by meso-level competition from digital downloads, more recently by streaming services such as Spotify or Apple Music, and now

with many returning to physical albums (Bartmanski and Woodword 2015; Knopper 2018). Of course, individual practice enactments of these meso-level practices are always contextualized, meaning the relative flexibility of listening to digital or streaming music is distinctly different from the contextual practice environment that attending a live concert or listening to a record is situated in. Another competitive meso-level practice is demonstrated in Thomas and Epp (2019) who show that the practice of using disposable diapers can displace the practice of using reusable cloth diapers among parents.

Adjacent practices, on the other hand, are practices that are part of the surrounding practice environment, although not necessarily part of the same macro practice. These adjacent practices connect to the focal practice in some way. Some adjacent practices are what Shove et al. (2012, 88) term collaborative practices, where practices "suppose and require the reproduction" of other practices, in particular in cases where "sequences are important, and where one practice produces elements… on which another depends." For example, the macro-level practice of cooking relies on the adjacent macro-level practices of farming and food distribution to provide the necessary material ingredient elements. Other adjacent practices are not so complementary. While they are a part of the practices' performance, they are harder to navigate, and hit up against the focal practice in difficult ways. For example, the meso-level practice of grocery shopping in a city might bump up against the adjacent meso-level practice of taking the subway when the shopper then has to navigate several trains while carrying heavy bags of groceries in this contextual setting. Thus, in examining a practice, it is crucial to investigate not only the practice itself, but also the environment in which it occurs, in order to understand how the practice interacts with the surrounding competitive and adjacent practices it encounters (Jensen 2017).

Practice Recovery

We introduce the concept of *practice recovery*, which we define as an individual attempt to remake a social practice following a gap in its enactment. The distinguishing feature of a practice recovery is the presence of this gap, or time during which the individual practice enactment was abandoned. Often, a practice recovery requires enacting the practice within a significantly changed meso-level practice and contextualized performance space, as we would observe in a practice adjustment or shift. The magnitude of the change in conditions for the practice's recovery vary widely, from relatively minor to more extreme. The greater the difference between the previous and current performance space, the more difficult recovery will be. Therefore, we posit shifts between meso social practices are more difficult than transitions between contextual practice settings within the same meso practice. To illustrate, a consumer who learned to drive in a small town in New Mexico might struggle to shift their existing practice of driving when they move to London, because of the shift in contextual practice environment and meso-level practices (town to city driving). However, this would be considered a practice adjustment around new conditions, not a practice recovery, because of the lack of a gap in the practice's enactment. On the other hand, if a consumer moved from Santa Fe to New York and gave up their practice of driving in favor of using public transit, their attempt to remake that social practice months or years after its abandonment would be considered a practice recovery, and one made vastly more difficult by the shift in contextual environment and between meso-level practices.

Shifts at the meso or contextual level can include changes in any of the three elements that make up a practice as described by Shove et al. (2012). For instance, someone who learned

to code in the punched card era would struggle to recover the practice of coding in the current era of interactive terminal programming because of this marked change in materiality. On a smaller scale, updates to a computer operating system can make returning to use it even after only a short break a process fraught with confusion. Meaning changes, such as the shift from employee to supervisor, or competency changes, like those experienced by the out-of-practice pilots, can also constitute a change in conditions for an individual's practice enactment.

At their most base level, practices are sets of "doings, sayings, tasks, and projects" that are held together according to a characteristic and meaningful organization (Nicolini 2012, 165). One way in which the actions that make up a practice are linked is through their teleoaffective structure, or how a practice 'should be' performed (Nicolini 2012). This teleoaffective structure links ends, projects, and tasks with emotions and moods that are germane to a particular practice, which together determine the actions a consumer takes in performing a practice over and above what is specified by rules or discrete understandings (Schatzki 2002). Importantly, teleoaffective structures are properties of the practice, not of the actors, in that they are "a set of ends, projects, and affectivities that, as a collection, is (1) expressed in the open-ended set of doings and sayings that compose the practice, and (2) unevenly incorporated into different participants' minds and actions" (Schatzki 2002, 80).

Shove et al.'s (2012, 23) theorization fractionally accounts for this teleoaffective structure within the practice element of meaning, which encompasses "the social and symbolic significance of participation [in the practice] at any one moment." However, it's also important to account for the strong external motivating force of the teleoaffective structure, and its continuing influence on ongoing practice enactments (e.g., the desire to be a good parent as a motivating force throughout Thomas and Epp (2019)). We argue that teleoaffective structures are

present throughout the multi-level perspective on social practices. At the level of general understandings, teleoaffective regimes unite many macro-practices integrated by their shared heterotelic ends, for example the desire for sustainability (Welch and Yates 2018). Thus, the macro-social practices of reducing energy consumption, recycling, and using sustainable transportation are united in a teleoaffective regime. It is important to recognize that general understandings are not a direct explanation for the performance of a practice (Warde et al. 2017), in the way a teleoaffective structure is. However, not all practices have teleoaffective structures, as Schatzki (1996) argues in his description of two distinct practice forms: integrative and dispersed. Dispersed practices generally center around a single action, for example describing, examining, or questioning, and are found, relatively unaltered, throughout social life (Schatzki 2002). In contrast to integrative practices, dispersed practices "rarely… possess teleoaffective structure" (Schatzki 2002, 88), a feature which allows them to be a part of many distinct integrative practices we describe as macro- and meso-level social practices. Thus, we argue, in line with Gram-Hassen (2021, 437), that "teleo-affectivity is the defining aspect of a practice." As such, each of these macro practices and the meso practices they subsume have their own distinct teleoaffective structures. For example, while a teleoaffective structure of the macro practice of sustainable transportation may be to reduce vehicle pollution, the meso practice of commuting by bike has a teleoaffective structure of exercise not shared by other meso practices under this macro practice, such as taking the subway or carpooling. As such, we propose that understanding the role of teleoaffective structures as a driving force at multiple practice levels is revealing in the context of practice recovery. Recovery often means shifting between meso-level practices and contexts, which result in shifts to the teleoaffective structure a consumer pursues in their practice enactment. Further exacerbating this, changes in any or all of the three practice

elements are reflected in the teleoaffective structure, such that it changes the relationship both amongst elements within the practice and also between the practice and other adjacent and competitive practices.

In uncovering practice recovery, we also investigate the teleoaffective structure as a reflection of the role of human purposiveness in practices. Previous research has often foregrounded doings, not sayings, and has further focused primarily on the unconscious or taken for granted elements of these doings (e.g., Dion, Sabri, and Guillard 2014). As a result, there has been less foregrounding of the temporal unfolding and shifting human purposiveness in practices. In this paper, we aim to emphasize the role that shifting meanings and teleoaffective structures play within the focal practice and their impact on the means, ends, and goals a consumer holds while enacting the practice. In particular, we uncover the unique interplay of shifting meanings and teleoaffective structures in the human purposiveness of practice recovery.

Distinguishing Practice Recovery

In this section, we address how practice recovery is located in the "nexus of pasts and futures" in which all practices exist (Schatzki 2002, 172), and distinguish it from others sorts of re-doings of a practice that have been previously described. As a plethora of past practice research illustrates, a crucial characteristic of practices is their reproduction and replication. Nicolini (2012, 227) writes, "practices differ from events in that they constitute enduring regimes of activity." When discussing the reproduction of a practice, it is important to note that each individual performance of a practice is unique, even if the goal of the practice attempt is to replicate or reproduce a previously enacted practice (Reckwitz 2002), in the way that each batch of chocolate chip cookies turns out slightly different than the last, even when you are using the

same recipe. These practice reproductions can occur more or less unconsciously as routines, for example brushing your teeth in the morning (Hand, Shove and Southerton 2005; Shove et al. 2012). They can also be reproduced ritually, in a way that is conscious or a mix of consciousness and unconsciousness, in cases where the goal is a pretty faithful reproduction of previous instantiations of the practice (Rook 1985). The enactment of a ritual reproduction is closely tied to the teleoaffective structure and cultural meanings, and the goal is to come as close as possible to the last time the practice was performed, for example cooking a Thanksgiving dinner (Wallendorf and Arnould 1991). Practices can also be reproduced from generation to generation, as in the cooking of passed down family recipes (Moisio, Arnould, and Price 2004; Cross and Gilly 2013). In these cases, there might be shifts in or a negotiation of the practice because of the composition of the goals of the people who are practicing it or changing cultural meanings or materiality, but the primary goals or ends of the practice are often stable across generations.

In contrast with practice reproduction and replications, practice recovery is not an adjustment of an existing practice around new conditions, because the practice in question experiences a gap in its enactment, during which the practice is abandoned and becomes an ex-practice (Shove et al. 2012). Similarly, practice recovery is not a shift or adjustment to realign a practice because of changing conditions. Instead, it is the process of returning to an ex-practice following a gap during which there was a significant change in the conditions for the practice's enactment. Practice recovery is distinct from practice replication or reproduction, in that it is not a repeat performance, where (although every replication of a practice is creative and distinct), the goal is to repeat or reproduce a previous practice enactment (Shove et al. 2012). In the same way, practice recovery is not a ritual reproduction (Bourdieu 1977; Wallendorf and Arnould 1991).

Thus, practice recovery is located at a unique nexus of practice enactment pasts and futures. Practice recovery asks how practices fall into and out of enactment, a relatively understudied area in practice literature (McGrath 2004; Nicolini 2012). Further, practice recovery describes the common consumer experience of recovering a practice that was previously abandoned—an experience that has not received research attention. By identifying and detailing this process, we uncover a common consumption phenomena wherein people return to a practice in a way that is better thought of as a recovery than the previously described reproduction or replication of practices. At this nexus of pasts and futures, consumers are trying to recover a practice when there has been a gap in its performance, where they are recovering this practice under very different circumstances and potentially with very different meanings and goals from the previous enactment. By investigating this ubiquitous consumer experience, we provide substantive insights on how to assist consumers in their quests to recover practices and make contributions to several key features of practice theory.

Method and Context

We propose and investigate the process of practice recovery by conducting a series of interviews and an autoethnography centered on the practice of bicycling at the meso social practice level of transportation in a university community. We take a lifespan approach by focusing on the individual experience of a practice over time and across meso-level practices and contextual practice settings in order to understand how the practice is enacted, and how the elements within the practice are aligned across temporalities, with complex embodiments, and as affected by new practice environments and the larger practice world. Uncovering the process of

practice recovery in the context of bicycling for transportation allows us to address a number of gaps in the existing practice theory literature, through our focus on social practices at a meso-level, examination of the practice itself, and through observation of how a prominent and consequential practice element, the bicycle helmet, is aligned across the practice trajectory. To better understand the context in which we situate our investigation into the process of practice recovery, we briefly introduce the practice of bicycling for transportation, before describing our research setting and methodology.

Context: Bicycling for Transportation

In this research, we focus on the recovery of the social practice of bicycling at the meso-level of bicycling for transportation in a university community (in and around a university campus), in particular as a means of travel to and from school, work, and for other activities such as grocery shopping or meeting friends. Bicycles are linked to many other meso social practices, including mountain biking, bike touring, and bike racing, which are not our focal practice. Likewise, consumers engage in many other distinct macro social practices to travel between these locations, such as driving or riding the bus, which we do not examine, outside of their presence in the larger practice world surrounding our focal practice.

The practice of bicycling for transportation is rapidly increasing in popularity throughout the United States (McKenzie 2014) and has beneficial outcomes for commuters and communities (Macmillan et al. 2014). Bicycling is especially prevalent in college towns, which make up 7 of the top 10 cities for bicycling in the United States (People for Bikes 2020), and 80% of the cities that have experienced the greatest increase in bicycle commuting (Federal Highway Administration 2012). Further, bicycle sharing programs have exploded in popularity in recent

years, making the practice of bicycling for transportation more widely available in many communities. In 2017 alone, the number of U.S. bike-sharing bicycles available more than doubled (National Association of City Transportation Officials 2017).

However, bicycling as a practice is not without risks. Head injuries, including traumatic brain injuries, are the most common cause of death and serious injury in bicycle-related accidents (Centers for Disease Control and Prevention 1999). In New York alone, 74% of fatal bicycle crashes involved a head injury, and in 97% of these cases, the bicyclist was not wearing a helmet (Nicaj et al. 2006). Substantively, there are many important reasons to encourage bicycle helmet use. Bicycle helmets are estimated to reduce the risk of bicycle related head-injury by more than 80% (Centers for Disease Control and Prevention 1999; National Center for Statistics and Analysis 2017), but usage statistics show that only 18-40% of adult bicyclists wear a helmet while riding (Bolen, Kresnow, and Sacks 1998; Breakaway Research Group 2015). In the United States, there is no federal bicycle helmet law, leaving states and jurisdictions to set their own requirements. Helmet use varies widely by age, with increased usage in states with helmet laws (Rodgers 2002); teenagers consistently exhibit the lowest compliance rates with helmet laws (Bonander, Nilson, and Andersson 2014; Puder et al. 1999). Among adults, 18 to 24-year-olds ride bicycles most frequently but are also least likely to wear a helmet (Bolen et al. 1998; Breakaway Research Group 2015). This problem is exacerbated in bicycle sharing programs, which typically do not provide or require helmets, with observed helmet usage of only 11% (Basch et al. 2015).

Data Collection and Sample Description

Research Setting. Research was conducted in and around a university campus located in Eugene, Oregon, a college town with around 170,000 residents. Eugene prides itself on being a bicycle friendly community, and like most college towns, houses a number of young adults who are living on their own for the first time. With high parking costs and limited space around the university, many of these young adults attempt to recover the practice of bicycling for transportation. Additionally, the presence of a bicycle sharing program, PeaceHealth Rides, in and around the campus and downtown areas increases the accessibility and prevalence of this practice by reducing the material barriers of owning and maintaining a personal bike. The overall popularity of bicycling makes the town a good contextual setting to investigate how this meso-level practice of bicycling is recovered and enacted among young adults. Throughout this research, both authors were embedded in local organizations responsible for creating the infrastructure for community bicycling practices, including work with city transportation officials and the administration of the bike share program from its launch, which gave us unique insight into material affordances and barriers to bicycling at a community level.

In-depth Interviews. In-depth interviews were conducted with 28 bicyclists over the age of 18 from fall 2018 through spring 2019. These informants were recruited via flyers posted around the university campus and downtown, as well as through a student subject pool. In total, 16 women and 12 men ranging in age from 19-24 participated in the in-depth interviews. The interviews utilized an open-ended questionnaire format (McCracken 1988), with the intent of learning more about areas of interest that arose from preliminary data collection in the form of collages, surveys, and intercept interviews, and to examine the enactment of both present and

past practices. These face-to-face interviews were conducted and audiotaped on the university campus. Informants recruited through the subject pool received class credit for their participation, and informants recruited via flyers received a $20 Amazon gift card as a thank you for their time. These interviews lasted between 25 and 78 minutes. Informants were asked to reflect on their experience with the social practice of bicycling, and their riding behaviors and history. They were also asked to reflect on the constituent elements of their practice performance, including the skills, meanings, and materials they brought to or considered including in the practice bundle. With informant consent and if available, photographs of their bicycle, related equipment, and other bicycling equipment were taken. Deviations from this script as appropriate during the interview allowed us to explore the full range of experiences without imposing a priori questions or assumptions and allowed informants to describe their experiences in detail. The audiotaped interviews, when later transcribed for analysis, comprised 598 pages of text.

Autoethnography. The first author also engaged in an autoethnography by attempting to recover the meso practice of bicycling. This autoethnography occurred in Eugene, Oregon using the PeaceHealth Rides bicycle sharing platform. This author had not engaged in the macro practice of bicycling in the previous past five years, and even then, has a background in the distinct meso practice of mountain biking in an entirely distinct contextual practice setting. Over two months, they engaged in an attempt to recover this practice by bicycling around campus and the surrounding downtown area. Using a voice recorder, they captured contemporaneous recordings of their internal states, thoughts, and feelings, as well as reflections before and after each practice enactment.

Autoethnographic participation allows the researcher to experience *in situ* the practice as it is experienced and performed in the moment, highlighting deeply felt bodily responses, emotions, and feelings that are difficult to capture via retrospection or observation (Larsen 2014; Wallendorf and Brucks 1993). As Laurier wrote, "far too many… researchers are only commentators and have never played… the best participant-observation is generally done by those who have been involved in, and tried to do and/or be a part of the things they are observing" (2010, 3). Thus, autoethnographies seek to emphasize that which is not generally present in scientific inquiry, "emphasizing lived experience, intimate details, subjectivity, and personal perspectives" (Ellingson and Ells 2008, 450). This approach allowed us to better capture the bodily perceptions, memory, and emotions experienced during the enactment of a practice recovery we could not capture in our interviews. This *in the moment* data collection also helped to overcome unintentional distortions due to the retrospective nature (Loftus and Loftus 1980) of our informant reflections on their attempts at practice recovery.

Our embodied introspective research follows in the tire tracks of researchers like Spinney (2006) and Kidder (2006), who conducted ethnographic research 'in the saddle' by biking with a cycling club in Surrey and working as a bike messenger in New York City. As suggested by Seamon (1980) and Wallendorf and Brucks (1993), our aim was for this autoethnographic data to support and enhance our interview data by combining and comparing insights from the autoethnography with careful accounts of the experiences of other consumers through our depth interviews. In this way, we capture the benefits of an autoethnography, providing thick description and foregrounding embodiment, while avoiding the potential downfalls of introspection, such as narrowing the field of inquiry or engaging in self-indulgence by prioritizing the researcher's point of view alone (Wallendorf and Brucks 1993).

Data Analysis

The data from the transcribed in-depth interviews were iteratively analyzed using a constant comparative approach to grounded theory (Glaser and Strauss 1967). Data from the autoethnography was systematically recorded and transcribed and collected along with photos, notes, and other reflections (Larson 2014; Spinney 2006). Idiographic analysis (Mick and Buhl 1992; Thompson, Locander, and Pollio 1990) occurred at two levels, within and between informants. Grounded theory techniques were used for an initial impressionistic reading and identification of commonalities. Using an open coding technique, the interviews were analyzed and categorized, with frequent meetings between the researchers to discuss and assimilate the themes emerging from the transcripts. Selective coding was then utilized to fill identified gaps. The insights from the interviews were further assimilated, compared, and contrasted with the insights and themes emergent in the autoethnography data, which helped to further fill gaps, in particular with respect to the contemporaneously experienced internal states (Wallendorf and Brucks 1993). Emergent themes from the interviews and autoethnography are discussed next.

Results

Our analysis reveals a multi-stage process of practice recovery, wherein contextualized and remembered social practices are formed into an envisioned and then enacted recovered practice. We begin by discussing how the practice of bicycling comes to form, exist, and be abandoned through childhood and early adolescence, followed by an attempted recovery of the practice in young adulthood. We discuss the meso-level and contextual performance space shifts that further complicate attempts at practice recovery, and the impact of surrounding practices on

recovery attempts. Using Figure 2.2 as an organizing framework, we detail the process of engaging in a practice recovery, as well as the plethora of misalignment opportunities present throughout this process. Finally, we discuss one consequential material element, the bicycle helmet, and detail how its misalignment and practice absence are the result of practice inconsistencies at a meso-level.

Practice Background

Emergence and Existence. In order to understand how our informants come to engage in a practice recovery, it is important to first understand the initial practice occurrence, or as Shove et al. (2012, 14) put it, how the practice comes to "emerge, exist, and die." Contrary to most past literature on practice alignment that focuses on macro- and micro- shifts (e.g., Shove et al. 2012; Phipps and Ozanne 2017), we focus on the individual experience of the practice over time, in line with the work of Greene and Rau (2018). All of our informants first engaged in the practice of bicycling in childhood. Although their specific contextual settings varied, the meso-level practice of childhood bicycling our informants recalled largely revolved around riding on trails or in their neighborhood for fun (also observed in Bonham and Wilson 2012). Initial practice development, particularly the learning of competencies needed to enact the practice may be difficult (Anker 2022). However, once the practice emerges, there is strong alignment between the newly linked elements of the practice of bicycling, such that materiality, meanings, and competencies are closely tied together in a practice bundle. Because this emerging practice is formed in the same practice environment in which it exists, negotiating links between the practice elements occurs organically, so the practice fits comfortably within its particular teleoaffective structure and its production feels seamless. Likewise, adjacent practices such as

riding to school or to meet friends are easily accommodated at this stage because they make up the fabric of the encompassing practice environment at the time the practice's elements are being initially linked and reinforced. Thus, the practice naturally grows to accommodate the elements, surrounding practices and teleoaffective structure it is situated in.

Death. Practice abandonment occurs when previously enacted practices shift and their constitutive element links begin to collapse. Previously well-integrated practices can become misaligned as a result of changes or disruptions to the internal practice elements or external context. As the practice falls out of alignment, it becomes an ex-practice in Shove et al.'s (2012) conceptualization, where the links between meanings, materials, and competencies are no longer made. Often the entire practice of bicycling is drastically attenuated, voluntarily abandoned, or changes form and function. Research indicates that adolescent bicycle riding dramatically decreases around high school age (Underwood et al. 2014), especially among teenage girls (Dill 2017). Why exactly this practice abandonment occurs is unclear, with some studies pointing to negative images associated with bicycles (Underwood et al. 2014), a desire for a more social form of transportation, especially among girls (Bonham and Wilson 2012), or competitive practices in the form of driving, with acquiring a driver's license at age 16 being a lauded 'coming of age' moment (Underwood and Handy 2012). Indeed, all of our participants decreased the frequency of their bike riding in early adolescence, with all but one abandoning the practice altogether around late middle-school to early high-school age (12-16). As Sophia describes,

> I do remember being a really active kid, but through adolescent years, or even before that, like age 10, I don't really remember riding a whole lot after that. I feel like [using a] scooter was more the in thing at that time, I guess. That's what I remember doing a lot of. So yeah, there's kind of a gap… that last childhood bike that I had, I probably got when I was maybe like 12, … and then [I] kind of ditched it for… like eight years or so.

This oft-recorded pattern echoes my own experience of bicycling. Raised in a family of avid bicyclers, I practically grew up in a bike trailer, and would often ride around my neighborhood or over to my grandparent's house. Around in middle school, I stopped riding, for reasons that are not entirely clear to me – some combination of increasing time commitments from school and my first job, not wanting to seem uncool to my peers, and the competition of learning to drive.

Practice Recovery

> I had a bike when I was younger and then ... I grew out of it and then I got another bike and I just kinda stopped riding after that one. [I took a break in] 5th grade, and then college, started biking again. – Charlotte

Following this period of practice misalignment or abandonment, we see an attempted practice recovery or return to the practice wherein a reformation of the links between the practice elements is attempted, and the abandoned elements must be reassembled. For bicycling, the timing of this practice recovery often occurs in young adulthood, around the time our informants begin college. Bonham and Wilson (2012) also observed this pattern, with over half of their informants recalling attempts to take up bicycling again in their late teens to early 20's following a period of abandonment. The process of practice recovery itself is difficult. Trying to play piano again after ten years is not initially a smooth and seamless performance. The inexorable passage of time during the gap in enactment distances the consumer from the macro practice and its meanings. Thus, recovering a practice involves overcoming the slippages in cognitive skills and physical embodiment, as Nicole recounted. "And then after a couple of years I haven't really biked, so I kind of lost, like it took me a while to get used to it... I was like, kind of wobbling around, like, "Okay. Yup." Kind of re-learning how to bike-ride." Material elements of the practice may also fall into disrepair during this gap in enactment, as Chelsea observed in the bicycle her roommate had intended to use in her practice recovery. "She brought her bike

freshman year thinking she was gonna ride it. Then we got really busy and then the bike got rusty, and I just noticed the more and more it was sitting out, like the more it just wasn't used. She ended up giving it away."

Meso and Contextual Shifts. Further compounding this difficulty, many cases of practice recovery are enacted within a significantly changed meso-level practice and contextual performance space. Our informants, including myself, all grew up in the United States, but have moved to Eugene from another town or state to attend college, and are living away from their parents for the first time. For them, attempts to recover the macro practice of bicycling are embedded in the entirely new contextual environment of a different town. This is true locally, where biking is ubiquitous, as Brandon describes,

> I like that it's kinda of an embraced culture, there's a lot ... [the town has] totally embraced biking, and everywhere you go you see fellow bikers. So, I like that. It's like you don't feel like you're the only one doing it. There's definitely a lot of people doing it… the bike lanes are huge here. Never been anywhere else that it gives you half the road dedicated just to the bikes.

But also true of college campuses in general, which Chelsea experienced.

> I came to college and you go from a small high school campus and you're commuting to and from home. But then here, campuses are huge, especially visiting college campuses, and seeing how many people and students use bicycles I was like, "oh, my gosh" …

For Chelsea, like many of our informants, this contextual performance space shift also encouraged her to consider a practice recovery (Pucher and Buehler 2008), as the practice of bicycling is so ingrained into college life.

> The first thing I thought of when I toured this campus is, "I need to buy a bicycle", because I saw so many people riding them and I was like, "oh, my gosh, I should probably get one". [I was] thinking I was gonna need it, not a want but like an actual need to get to campus. So that's when I noticed it, and that is I think a stereotype on a lot of college campuses, which is like bicycles are everywhere, it's the main sort of way to get around.

However, our informants also had to contend with shifting between meso-level bicycling practices. The meso practice of childhood bicycling, although it shares some commonalities with the meso practice of bicycling for transportation in a college town via their shared macro practice of bicycling, is also distinct in many ways. Firstly, the teleoaffective structures of the meso-level practices differs significantly. Childhood bicycling is largely centered around enjoyment and entertainment, whereas transportation in college is mostly focused on utility. In contrasting his experience performing both practices, Colton described how he used to "just ride my bike, like, on this country road for a few miles. Just like, because. Because I thought it was fun." Similarly, Evelyn describes how as a child, "I wouldn't use bikes for getting one place to another, it was mostly having fun, playing with friends, going outside." This is in contrast to her usage of bikes currently, where she uses the Bike Share program to "Basically to get to school and go home. So, it's school/home. That's what I use it for." Childhood bicycling also generally includes others, in the form of parents, siblings, or friends, whereas bicycling in college is generally a solitary activity. The locales and competencies required differ as well, from trails and neighborhood streets to crowded areas on campus and bike lanes on busy roads. The materiality of the bike itself is also distinct, trading streamers and bike spoke decorations for locks and headlights. Leisure and exploration are eclipsed by obligation and practicality. As Mason puts it, "I'm just trying to go to class and look presentable."

This meso-level practice differentiation is also reflected in the other meso bicycling practices our informants have recovered, including mountain biking, bike racing, and bike touring. These practices are markedly differentiated from the practice of bicycling for transportation on a college campus, with a distinct teleoaffective structure and practice bundle composed of different practice elements of meaning, materiality and competency. As an

illustration, many of our informants who engage in bicycle racing or mountain biking have two (or more) separate bikes for their different meso practices, as Jacob describes.

> I have two bicycles. I use one for commuting to school and back sometimes, and I have a full suspension mountain bike that I use for riding on trails… so they're just exclusive purpose. One is really cheap and would never get stolen, or I wouldn't care too much if it did get stolen, and one is very expensive, and I never lock it up around [town]. It stays in my room.

They're also differently maintained. Towards his daily commuting bike, or "shitty bike" as he refers to it, he says "I'm just neglectful… I just don't do much to it. It's old. The components are totally damaged… I do absolutely nothing. I pick it up. I get it out the front door. I hop on it. It squeaks. It has issues. It gets me there." By contrast, he engages in a very involved 30-minute process of maintenance every time he uses his mountain bike, including washing it down, cleaning the breaks, oiling the chain, checking the spikes aren't loose, checking the tire pressure, and setting the sag on the suspension. Another element that differs between these practices is the bicycle helmet, which is frequently built into mountain biking ("You don't mountain bike without a helmet" as Jacob describes) and road racing (where it's required by racing organizations), but infrequently included in the practice of bicycling for transportation.

Meso-level shifts are also reflected by changes in our informant's competencies. Sophia describes how she is "more timid as a commute biker and way more confident as a race biker." Similarly, Brandon, who is an avid mountain biker, talked about how his riding styles and competency differ between his practices.

> It depends what bike I'm on… on a PeaceHealth I'm pretty mellow, but if I get on my Specialized, and I'm on the trails I definitely like to hop around and don't like to stay on the ground for too long… jumping around and stuff.

Indeed, Olivia described how a mismatch between her practice bundle and the meso practice disrupts her performance if she commutes on her racing bike rather than on the bike share bike she generally uses to commute to class.

> If I'm on my race bike, I just accidentally ride fast everywhere I go. Then, I'll get to campus in two and a half minutes, which is awesome, but I also did not mean to get to campus in two and a half minutes, so I feel like the PeaceHealth bike kind of just slows me down, which ... in a good way. I'm just more mellow.

Indeed, we suggest that calibrating around the meso practice a practice performance is positioned within is crucial for understanding practice engagement, especially in a practice recovery where understanding these meso and contextual performance space transitions have important implications for the recovery process.

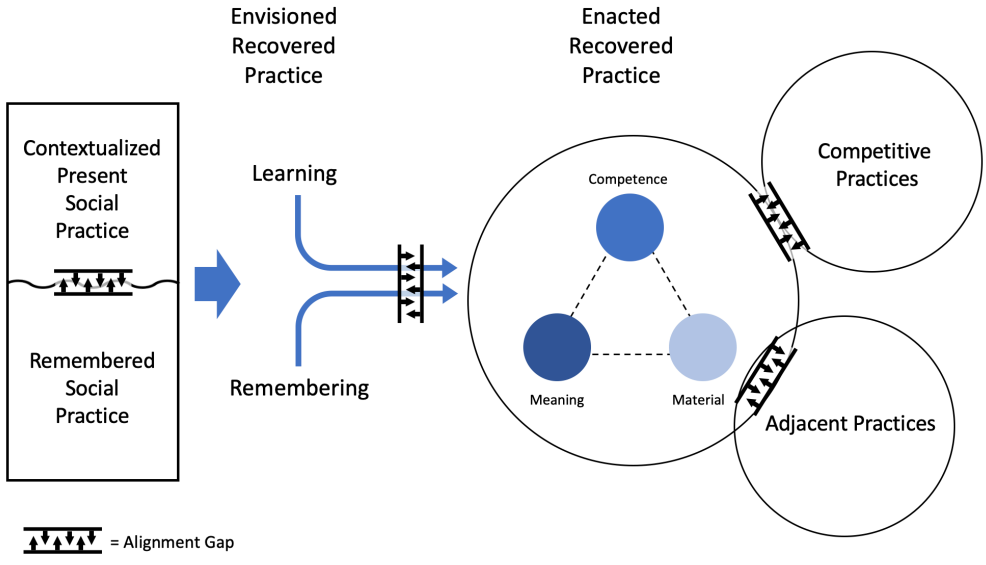
When our informants attempt to recover the practice of bicycling, they do so under very different conditions than their initial practice formation and existence. At a macro level, our informants are returning to the same practice, that of bicycling, but because individual practice performances are always nested within both contextual performance spaces and meso level practices, the shift between meso practices greatly increases the difficulty of attempting a practice recovery. The meso-level practice of bicycling they are attempting to recover, namely bicycling for transportation in college, is both vastly different from their childhood macro practice of bicycling, and also occurs in a substantially altered contextual performance space. However, despite these substantial differences at a meso level, our informants think and talk about the process of recovering bicycling at the macro level, often viewing their previous practice enactment *as* the macro practice of bicycling. Indeed, despite the wide range of doings observed among our informants, their sayings are consistent, with many informants referring to bicycling "again." Emily recalled that, "when I moved to Oregon two years ago, I started biking again because it just was really convenient". Likewise, Evelyn described how she "started up

again fall term, but before then I would never ... I think ever since middle school up I haven't used a bike." This linguistic indicator was apparent throughout our interviews, signifying the consideration of a linkage or recovery between the practice of bicycling as a child and the practice of bicycling as an adult, rather than considering it to be a new practice emerging in adulthood. Our informants overlook the nuances between their meso-level practices, instead focusing on the return to the macro practice. Indeed, our informants who only engaged in childhood bicycling speak of recovery in the same way as our informants who also engaged in another meso practice such as mountain biking before practice abandonment. Their journeys to recovery might vary, but there is commonality in their sayings of this as a recovery process.

The Process of Practice Recovery. We suggest that as the process of practice recovery unfolds following a gap in the enactment of a practice, and potentially within a shifted meso-level practice and contextual performance space, there are numerous possibilities for misalignments to occur. We describe this process and the related risks of element misalignment through a series of stages depicted in Figure 2.2. First, in order for practice recovery to occur, consumers need to envision the practice under their new circumstances. Thomas and Epp (2019) proposed the formation of an envisioned practice as an important step between a social practice and an enacted practice. An envisioned practice consists of the plans, or anticipated practice a consumer expects to engage in. Envisioned practices are built by gathering "the sets of needed elements of each practice they intend to integrate in the future" (Thomas and Epp 2019, 571). In the context of bicycling, the formation of an envisioned practice includes materiality, meanings, and competencies that the consumer anticipates will be a part of the enacted practice, and requires integrating across two distinct meso-level practices, the remembered practice of

bicycling as a child, and the surrounding meso social practice of bicycling for transportation in and around a college campus. Interestingly our informants did not look to the overall macro practice of bicycling to form their envisioned practice. Instead, they looked back to their previous practice enactment, referencing the contextual setting and meso-level in which it was situated. This remembering was coupled with observation of how the social practice was currently being performed around our informants their present contextual setting. Thus, consistent with Akaka and Schau's (2019) findings on the need for reconciliation between consumer identity and social structures, we emphasize that the contrast between the prior and present practice performance and conditions are a crucial factor that have been overlooked because we tend to focus on social practices at a macro level rather than examining the meso practice and contextual space an individual performance is situated in.

Figure 2.2. The Practice Recovery Process and Alignment Gaps



As an illustration, Amy purchased her bike the summer before college, choosing to not bring forward the bike she used in early high school, which belonged to her parents in the 80s. She also assembled other material elements she anticipated using in the practice of bicycling, including lights, a bike rack to carry things, a helmet, and a bell she added to her bike,

> That's something I put on. People will yell "on your left" and stuff like that. I don't like doing that. I just ... I don't know, it feels weird yelling at people, even if I'm not actually yelling, I'm just saying, hey, move over. So, I always have a bell that's pretty loud.

Amy also thought about her competencies in terms of how and where she is comfortable riding a bike in her new contextual performance space, "I always stay on bike paths, and I don't usually ride with traffic that often unless it's on 13th [the main road to campus]." Amy's goals lead her to pursue a meso practice whose teleoaffectivity better matched than her previous practice enactment, which largely centered around going on rides around the neighborhood with her family. In her recovery, she "wanted to do more exploring. So, I just got back on my bike and was just like, okay, I can bike from… I know I have never done this before, but I can in theory bike wherever I want and go explore", a meaning and her realization of a teleoaffective structure in a shifted meso practice that fits well with the material and competency elements Amy envisioned as part of her recovered bicycling practice.

As illustrated in Figure 2.2, the formation of an envisioned *recovered* practice still involves anticipation of the elements and plans required to enact a practice. As Alkemer and Buschmann (2017, 12) describe, "Candidates for participation [in a practice] reciprocally initiate themselves as and make themselves into participants by equipping one another, with the collaboration of things and artefacts, with situational possibilities of action and, at the same time, delimiting them." In a practice recovery, as Amy demonstrated, this anticipation is a result of both learning from the current social practice (the contextualized present social practice) and

remembering the social practice as it was enacted in the past (the remembered social practice). Thus, the envisioned recovered practice both integrates information from the contextualized present social practice and retrieves information from the remembered social practice. If the meso-level practice and contextual performance space have shifted during the gap in enactment of the macro practice, consideration of these practices is more difficult, and necessitates particular attention to the distinct characteristics of the meso practice and contextual performance space of the surrounding and remembered practice performances.

Anytime consumers attempt to form an envisioned recovered practice, they likely draw on both their contemporary environment (which has significant heterogeneity in it) to decide what the practice should look like now, as well as considering how they enacted the practice before, in terms of the embodied practice competencies, materials, and meanings they formerly brought to the practice. While some elements are brought forward from the previous practice enactment, for example equipment they already possess, other elements are new to the practice. Consumers don't pick up where they left off with their previous abandoned practice enactment, they engage in a complete reassemblage between their past and contextualized present. Like Amy, this often results in informants acquiring and anticipating the incorporation of new material elements such as bicycle locks, racks, and lights to their envisioned recovered practice.

Once an envisioned recovered practice is formed from this recursive learning and remembering integration, it is then enacted as a recovered practice. This enacted recovered practice forms based on the changing practice elements and in relation to present competitive and adjacent practices. Amy's experience illustrates how the recovered practice is first envisioned and then enacted. Her envisioned recovered practice was partially formed from her remembered enacted meso practice of bicycling as a child for fun and exercise,

> I did bike a little bit when I was a kid. Normally I'd go out with my family. One of my sisters outgrew both their childhood bikes, and I was the only one that really wanted to continue it more as an adult, so I didn't go on group rides with my family as much when I got older. But when I was younger, we would just go out and go around [the neighborhood] for a little bit… it was just more fun than walking to me. You get to see a lot more and still can get a similar amount of exercise.

This remembering was integrated with learning about the contextualized present meso social practices of bicycling that Amy observed around her. She also ran into great heterogeneity in the macro-level practice of bicycling locally, due to several meso-level bicycling practices intersecting in this contextual performance space. Thus, Amy also navigated between contextualized practices in order to find a practice whose teleoaffectivity fit with her goals in order to form an envisioned practice within this space.

> I don't like the very hardcore bikers that turn it into this elitist thing, like the people that are ... The very stereotypical, stick-thin, everything you own is specialized biking, like, full bike suit, just because I think it's really intimidating. I don't see a ton of that in Eugene, but there's still some, and it's just not what I think biking should be. … I think generally, Eugene is pretty open to trying to change and make biking more popular for everyone. I think there are a lot of cool things to try to get people out on bikes more. There's the event like Moonlight Mash that's put on... or Sunday Streets, where they close off the roads, just trying to get people to think about active transit.

Through this learning and remembering integration, Amy formed her envisioned recovered practice of bicycling, which she enacted as distinct from the 'elitist' meso practice of city commuting, emphasizing encouraging fellow bicyclists to experience the enjoyment of riding she brought from her remembered practice in childhood, "I really like being friendly and trying to get other people into cycling, and I feel like it's a very ... I'm very happy when I'm on my bike. I'm out exploring and exercising, and there's nothing really bad about it to me."

One question to consider is what stage an individual enactment is fully "recovered". Is it after one performance of the practice? Five? Ten? We argue that a recovery is no different from the initial learning and entry into social practice in this regard. Alkemeyer and Buschmann

(2017, 9) assert, the "status of a participant is dependent upon mutual recognition." Thus, although the timelines might differ, engaging in a practice, recovered or initial, requires a performance that both the individual and others recognize as 'fulfil[ing] the requirements' of that practice (12). Engagement with a recovery, in the practice existence stage, is not a permanent state of being. Although we do not capture it in this research, an individual practice recovery is often just one instantiation in what is a veritable on-and-off relationship with practices over the life course. Indeed, Bonham and Wilson (2012, 5) found that almost two thirds of their respondents had "returned to cycling several times through their lives" with their research simply catching them "at the moment of their most recent return." We are under no misapprehension that the recoveries we capture in this research will be the last for our participants – but we assert that the process of recovery looks similar, especially in the integration across *what was* and *what is now*, whether it is the first or fifth time a consumer returns to a practice throughout their life course.

Surrounding Practices. One factor that can encourage (or discourage) a practice recovery is the greater surrounding practice world of an individual's particular contextual practice space. This is especially apparent when consumers experience a significant shift, for example joining a new friend group who all enjoy karaoke probably makes that recovery more likely, whereas moving to a town where it never snows probably discourages a recovery of skiing. For our informants, moving to a bike friendly town to attend college both encouraged and discouraged recovery of bicycling. As Chris describes, when you need to get somewhere quickly in town, bicycling is significantly faster than the competitive practice of walking, "Last year, I didn't ride my bike for like a term. And it would take me like 30 minutes to walk around… [This term it's]

just a like 10-minute bike ride. It's just faster." Katelyn also returned to bicycling in a bid to find a faster alternative to walking, as the teleoaffective structure of bicycling was a better fit with her goals and adjacent practices.

> It was the first term of campus here, like two years ago, I was just walking from [where I parked my car] to class and I was like, "There's gotta be an easier way, I don't wanna have a scooter 'cause I don't wanna look like I'm 12, but then at the same time I can't use a skateboard, and that's probably even more convenient." And so, I was like, "Okay, well what can I put in my car?" 'Cause I can't get a new car, so I found a foldable bike on Craigslist.

Katelyn considered multiple potential competitive transportation practices that she would be able to combine with her current adjacent practice of driving her car partway to school several days a week, "I generally have to park all the way out… which is a half an hour to 45-minute walk, depending on how slow you are. And I'm very slow." Katelyn eventually chose to integrate a new material element in the form of a bicycle she could fold up and keep in the trunk of her car, which she settled on because she had the competency to bicycle (which she lacks in the practice of skateboarding), and her self-image fits with the meanings she associates with this meso practice of bicycling (unlike a riding a scooter, it doesn't make her feel like a child). Katelyn's recovered practice of bicycling has worked well for her in terms of fitting in with her adjacent practice of driving partway to campus if she needs to go to work or somewhere else after class, "If I am knowing that I have to go somewhere later in the day, I'll take my car with me, but I'll just use my foldable bike to commute to campus." Katelyn's incorporation of the distinctive material element of a folding bicycle in her practice offers the unique benefit of portability, which allows her to store it in her car's trunk for easy combination of her transportation practices, but also manageability in a pinch to avoid undesirable concerns such as theft, "the foldable bike is nice because if you do forget a bike lock, you can literally fold it and bring it into

the classroom with you, which looks weird, but you can do it. So, it's not going to get stolen, so it's nice."

In town, bicycling can also be a competitive practice and faster alternative to driving. Evelyn described how, "You can get home in half the time you use a car." Similarly, Andrew talked about how "There's more ways to cross the river on a bike than there is with a car. It's easier to avoid stoplights on a bike. Some places you can get faster on a bike than a car." Other driving adjacent practices such as parking also provided strong encouragement to recover the practice of bicycling. Another component of the contextual practice space propelling our informants is the high cost of parking in town and on campus, which prompted Luke to switch to bicycling, "I don't want to pay for parking this year. Parking's expensive. It's like 40 dollars a month. There's almost no parking spaces. You have to get here early or wait half an hour which kind of sucks. So, I just bike now." Parking inconvenience also spurs bicycle use, as Katelyn experienced, and as Brandon describes,

> My parking situation is kinda ... like I don't park it at my apartment, because my apartment parking complex is full. So, I have to walk like a mile and half to use my car. So, I do, but I don't [use my car]. It's not like it's something I use a lot. I typically ... that's also why I got the [bike share] thing, because I didn't feel like walking everywhere, and it's a hassle to use my car. So, I just like bike around.

The introduction of the PeaceHealth Rides bike sharing program to the community also encouraged recovery by making the opportunity to recover the practice of bicycling accessible for many consumers. Informants who did not bring a bike with them to college, and had not even considered whether they should recover the practice of bicycling now had that opportunity by simply downloading an app. The materiality of the bike sharing program prompted many informants who hadn't previously considered bicycling to attempt a practice recovery, because of the increased convenience and ease of access. As Hailey describes "they put them right

outside our apartments and we were kind of interested in them and then we saw that there's a student discount. And so we were like we might as well just try it out, and it was pretty fun." As these experiences illustrate, practice recovery and the motivations that underlie attempts to recover a practice, can be shaped by a wide variety of factors, including the teleoaffective structure of the meso practice and contextual factors in the performance space.

Misalignment within Practice Recovery

Within this complex process of practice recovery there are many risks for misalignment. In Figure 2.2, we represent particular places in the practice recovery process where meanings, competences and materials are actively imagined, negotiated, improvised, and experimented with in order to align the envisioned and enacted practice with present circumstances, which include the contextual performance space, and teleoaffective structure and characteristics of the meso-level practice a recovery is situated in. Of course, misalignment can occur at any moment in a practice enactment, but from our analysis, there are several places where the risks of misalignment among elements are pronounced and active integration can be especially valuable—we refer to such places as alignment gaps. These alignment gaps are places where, for our informants, there are prominent risks of misalignment, and where there is active negotiation, imagination, improvisation, and experimenting, or, if they are not brought into alignment, dissonance and unresolved misalignment. Some of these alignment gaps, such as the gap between envisioned and enacted practices (Thomas and Epp 2019), have been identified before, but what is unique about our research is that it foregrounds new opportunities for research on practice misalignment in the context of a practice recovery. We detail each of these alignment gaps as they occur in the process of bicycling practice recovery.

Creating an Envisioned Recovered Practice. The first alignment gap occurs in the space between the present social practice of bicycling and the remembered practice. Active negotiation, imagination, improvisation, and experimentation is needed to integrate across this alignment gap. This gap occurs when the consumer tries to bring together the conceptualized array of present social practices that includes various competencies, meanings, and materials, that were not present in the previously enacted social practice. The consumer attempts to bring this current contextualized social practice into some sort of alignment with the remembered social practice, but the larger the gap between these, the more difficult it is for the consumer to create an envisioned social practice. To create an envisioned social practice, it is important to integrate materials, competencies, and meanings, but for an envisioned recovered practice, the consumer also has to integrate across what is going on in their current contextual performance space with their current identity, while remembering how they previously engaged in the practice, which may also involve an entire shift between meso-level practices. Alignment gaps can be created by one or more of the practice elements (materiality, competency, or meaning), a gap in identity, or from a gap in the contextual space in which the practice itself is enacted. For example, Ashley talked about the gap in her *competency* as a bicyclist as compared to the bicyclists she sees on campus,

> Yeah, [I use the bike] more like for fun, not really to get anywhere. Or like we'll go to the grocery store or something like that, not to class. I'm too scared of like hitting people with a bike, biking around 13th. I don't know … just 'cause there's so many people walking on campus that I'm just like a little too afraid to. I'm not the best biker, so I don't think I could weave through people like some people can.

Ashley's remembered meso-level social practice was of bicycling for fun, with her family or to visit friend's houses in her neighborhood. As she starts to recover the practice of bicycling,

however, her observations of the new meso-level contextualized present social practice she observes around her center on bicycling with a specific goal or destination, such as going to class. As she moves toward forming and envisioning a recovered practice, Ashley experiences a gap between her perceived competency and the competency she envisions the contextualized present social practice she observes her peers engaging in requiring, and as a result, her enacted practice does not integrate with adjacent practices that she deems necessitating increased competency. Ashley's bicycling practices are very specifically integrated with only some adjacent practices based on her perceived ability to ride and comfort with the material environment like paths, bike lanes, and pedestrian density, and exclude bicycling to achieve a specific goal or task such as getting to class, for which she engages in the competitive practice of walking instead. Similarly, Evelyn discussed how her envisioned practice differed from the practice of bicycling she remembers engaging in as a child which she now views as reckless and dangerous,

> I was very adventurous with bikes. I'd go downstairs, I'd go down big hills, I'd jump off ramps and stuff with my bike. But there's that saying, "When you get older, you tend to be more knowledgeable of risk," and for some reason ... I was a daredevil with my bikes, and then when I got older… I was like, "Maybe I need to stop riding [like] this." I would get more nervous and scared about riding bikes, just because I would be knowledgeable of risk and all these things. That adventurous, crazy, doing all these tricks type, I would just stop.

There were also *material* gaps that had to be rectified to create an envisioned practice. Nicole talked about how she didn't bring her bicycle from home when she came to campus, because of what she learned about the contextualized social practice of bicycling in town,

> I remember like, my dad wanted me to get a bike when I came here and he was like, "Just go to a really cheap bike store and get the cheapest bike you can find that you're able to ride." 'Cause like, he knew that it was a bad thing in Eugene, people stealing.

In anticipation of attempting to recover bicycling, the first author's autoethnographic notes report, I found myself gathering everything I thought I would need in attempts to anticipate and overcome this gap. I dug in the back of the closet, and recorded on my audio diary the reflection that "It's weird… I'm standing here holding my bike helmet that I wore as a child. It's red, it matches the bike I had when I was a kid that was also red that is long gone now… but I'm trying to figure out how to make things fit into my new life here." I strongly felt this contrast between past and present as I tried to envision my practice recovery, especially since I don't have a bike here, and was reliant on an entirely foreign materiality of the PeaceHealth Rides bikes. Before I first rode, I found myself asking my husband "do they have gears?" Which of course, they do, although it took me until my second ride to figure out how to work them reliably. I downloaded and signed up for a membership, and then ran into another unanticipated material gap. I didn't have shoes to use. When I was growing up, I had clip-in pedals and shoes that matched, but here I didn't. I actually continued to struggle with this materiality throughout my recovery attempt. The second time I rode, I wore one of my favorite pairs of shoes for walking, my usual mode of transportation, which were, as it turned out, incredibly uncomfortable and impractical for pedaling. As we will see not just from this autoethnography, the transition between envisioning and enacting is not always smooth.

In this contextual practice space, the bike sharing program offered opportunities to overcome this alignment gap for informants who had anticipated recovering the practice of bicycling but weren't able to envision it. Jackson recovered the practice of bicycling at the end of his sophomore year with the PeaceHealth Rides program because it was able to overcome the material barrier to entry he ran up against when attempting to envision a recovered practice with a personal bike,

> That freshman year, when I first got here, I was planning on getting a bike. And one of my friends I made in the dorms… third day, I think it was of school, got his bike stolen. Then a kid I went to high school with… he got his bike stolen like, the next day. So I was like eh, I don't know if I'm about to shell out that cash right now. That was a huge, huge discouragement. I would say I would have purchased a bicycle for sure if I had known that it wasn't going to get taken.

Another common material gap our informants experienced was use of a bicycle helmet. As Colton explained "I didn't really know that people biked without helmets at college. I thought everyone wore helmets. …When I first got here [to campus], I was like, wow. Like no one's wearing a helmet." Colton anticipated using a helmet in his practice recovery as it was a material element in his previous performance within the meso practice of childhood bicycling, and was surprised to realize it was not a part of the practice bundle for the meso performance his recovery was situated within.

From Envisioned to Enacted Recovered Practice. The second alignment gap occurs between the envisioned recovered practice and the enacted recovered practice. Risks of misalignment can result from ineffective translation between the envisioned and embodied recovered practice. In this gap, the consumer thinks that they have successfully created an envisioned recovered practice, but as they move to enact the practice, they run into areas where the practice hasn't been envisioned carefully enough, because the envisioned practice is based on a mixture of the contextualized and remembered social practices, and potentially shifts between meso-level practices. Additionally, consumers can run into misalignment if they do not accurately take into account how their meanings, competencies, or materiality have changed or shifted since the last time the practice was enacted.

Nicole talked about a gap in competency between her envisioned and enacted bicycling practice recovery when she started using the PeaceHealth Rides bicycles. Although she

anticipated using the bike to commute to school, her competencies were not what she expected when she tried to enact the practice, “And then after a couple of years I ha[dn’t] really biked, so I kind of lost, like it took me a while to get used to it on the bike share bike. I was like, kind of wobbling around, like, ‘Okay. Yup.’ Kind of re-learning how to bike-ride.” Chelsea also talked about struggling to enact her envisioned practice, “We literally got on a bike, I was a little hesitant, like, ‘oh god, these bright blue bicycles’. I'm running right through campus, I'm not the best bike rider all the time, trying to avoid and dodge all these people.” She also experienced a materiality gap between her envisioned and enacted practice when she first came to campus that interrupted her first attempt at a practice recovery, “I used to own my own bike for a while [but] freshman year, and we had a lot of problems with our bikes getting stolen, and so repetitively with my roommate and I. After that we just kinda gave up on that.” Chelsea gave up on bicycling after her bike was stolen, and didn’t attempt another practice recovery until the ride-share program made shared bikes available in town, “I came out [of my dorm] and the two tires were gone, and I don't even know what one of the other [missing] pieces were but it was not right at that point… I didn't use a bike again until PeaceHealth came and we had that option.” Thus, the materiality of the bicycle sharing program provides affordances that break down some of the material barriers to bicycling as a form of commuting on campus. At the same time, the articulation of this practice comes with its own complexities. Now riding a bike also involves the process of finding an available shared bike, unlocking it using a keypad, adjusting the seat for your height, avoiding being charged extra by riding for longer than your plan allows or leaving the system area, and finding a place to lock the bike up when you’re done. Thus, the articulation of the performance of the practice has distinct affordances within the particular material conditions.

Indeed, the materiality of the bike share bicycles also shifted the way some informants engaged with their recovered practices they had first enacted on a personal bike. For example, the shared bikes are significantly heavier than the average personal bike, which impacts competency and as a result, practice goals. Evelyn experienced a positive shift in her competency, feeling more "safe and secure" on the shared bike (so much so that she would make her boyfriend ride her personal bike when they rode together, "I would only use the PeaceHealth bike. I don't know why I got a bike if I was using the PeaceHealth bikes."). For other informants, this material shift had a more negative impact. David, who now only uses the bike share program in his practice because his personal bike was stolen, feels limited by the "super heavy" shared bikes. They decrease his competency and limit the geography of his practice "It makes me not want to do the bike rides I did over the summer, where I would go for a bike ride for fun. I would bike through Springfield [neighboring town] or something, but I don't really do that with the Bike Share bikes because it's not as easy to get around. It takes more effort." The materiality of the system itself also alters the geography of bicycling and adjacent practices. The system covers only part of the town, with hefty fees assessed for leaving this area. Thus, the system encourages increased exploration within these borders, but limits practice enactments beyond them. As a result, the materiality shifts of the system and shared bicycles can modify the meanings and goals and shift the teleoaffective structure of a recovered practice enactment away from the way in which it was envisioned, here limiting the uses and adjacent practices bicycling can coordinate with.

The first author's autoethnographic notes report as follows: The first thing I said when I got on the PeaceHealth Rides bike was "Oh my god, these are heavy!" That was followed by two false starts on the sidewalk before I finally ventured out into the road, struck by how wobbly my

legs were, and thankful for the quiet and unoccupied street. A block later, I said "I'm scared I'm going to tip over at any moment." Two blocks later, "It's actually kind of fun! I'll ride a little more than I thought I was going to." The entire time, my heart was racing, and there was a pit in my stomach. Every aspect I thought was going to be easy, or hadn't even considered, was more difficult than I would like. The second time I started out, I said, out of breath, "that was a smoother start than the last one for sure. It would be hard to get a worse start than that…" I tried to ride carefully but was embarrassed and startled by my competency declines. I joked that I was scared I was going to crash into a car, and then mere minutes later, proceeded to come within inches of actually crashing into a parked car, ringing the bell and smashing my finger on accident just to add insult to injury. I ended the very short ride feeling both exhilarated and out of breath, with a heart rate of 117, and a feeling I described as "like being on a roller coaster. Your stomach is in your chest, but you're also enjoying it." That first attempt at practice recovery was a shocking realization of the bodily competencies I hadn't expected to have lost in the gap in my practice enactment. This was further underscored by reviewing a video my husband had taken of me riding – what had felt like flying down the road at a reckless pace was in fact, painstakingly slow riding I could have easily kept pace with on foot. My first recovery attempt also drove home the impact of the practice shifts in this recovered enactment – the bike was new and I didn't know how to shift, the road was pitted with holes and uneven pavement that grabbed my tires in unexpected ways, and I was biking next to cars, something I'd never done before coming from a background in the meso practice of mountain biking on trails and childhood bicycling on dedicated paths.

Many informants reported acquiring materials they anticipated using in the envisioned practice stage that they have never used in their enacted recovered practice. Elements are often

assembled in anticipation of an envisioned practice, but this assemblage is elaborated and navigated as the practice grows and is enacted, such that certain elements fall off while other elements are brought in (Figure 2.2). For our informants, this material element was most often a helmet. As Colton recalls,

> I was at, like, Big 5 or something. I was just shopping for college, and I was like "oh, I need a helmet for my bike". That I thought I was going to use freshman year. And so I bought, like, a helmet and a light and… I didn't really know that people biked without helmets at college. I thought everyone wore helmets.

Colton still has the helmet but has never worn it as part of his enacted bicycling practice. Similarly, Chris talked about how he bought a helmet "last year when I got my bike", but when asked if he had ever worn or used the helmet, he said "Literally no. Nobody else uses their helmet." Other material elements, like rain gear, lights, racks, and better locks, were often unanticipated additions to the practice assemblage as it was enacted, in response to experienced misalignments between envisioning and enacting. For example, Amy recalled that "I have added a back rack… so I can carry groceries easier and stuff like that." She also attempted to add lights to make late rides home from class easier, but ran into difficulties in enactment, when "one of them broke and I think the other one got stolen," and as a result they were dropped from her enacted recovered practice.

Navigating Competing and Adjacent Practices. The enacted recovered practice comes up against all kinds of new environmental forces that create the last two gaps where risks of misalignment are prominent. As a result of the numerous practices a consumer engages in daily, it is vital to consider inter-practice relations, as many practices bump up against each other in the different circumstances in which the consumer attempts to enact the recovered practice. Two alignment gaps are revealed in our data: first, between the recovered enacted practice and

competitive practices, and second, between the recovered enacted practice and adjacent practices. Misalignments that occur between the enacted recovered practice and competitive practices usually results in abandonment of one of the practices, whereas an area of misalignment between the enacted recovered practice and an adjacent practice can differentially affect an element of the practice without replacing the practice completely.

Several informants talked about *competitive* practices that for a time replaced their bicycling practice. Charlotte recalled that before she had access to a bicycle,

> It was mostly I would walk and then I'd have friends, I think one had a car, so if we needed to go run errands or something, I could either ask her to borrow it or she would take us. A lot of my commuting was to my sorority house on campus. We would take the bus or we'd take the bus to the grocery store or whatever.

Evelyn talked about a friend of hers, who stopped bicycling, "I know one of my friends, she likes using ... She just got a car. So, the excitement of the car, she just likes using her car and she likes to carpool and pick up a lot of people and take them places, and stuff like that."

Interestingly, *adjacent* practices don't function in the same way as competitive practices. The practice of bicycling is deeply embedded in everyday life locally, which means that it frequently bumps up against adjacent practices such as going to school, working, going to visit a friend. As Claire described the town, "Overall, it's like a community like trait that people just like bike here. And it's just easy to do…" So while the presence of adjacent practices for the most part didn't displace the practice of bicycling, we did see that their presence impacted the constituent practice elements. This differential impact of an adjacent practice on one element within the practice bundle for the most part does not topple the whole practice; it just means that the practice doesn't involve that particular element.

Here again, is another sticking point for the bicycle helmet, as a result of the misalignment gap between the practice of bicycling and other adjacent practices. Our informants

who did attempt to integrate a helmet into their practice recovery, found that the adjacent practice of attending college classes was particularly difficult to integrate with this material element. In particular, Amy discussed the difficulty of integrating this a helmet with her adjacent practice of attending school because she would have to carry it around with her all day,

> I don't usually wear [my helmet] on campus just because I usually feel like it's more trouble than ... Either I forget it, or I feel like it's more trouble than it's worth. I keep it on a pretty high shelf in my closet, so I'm not going to go get a chair, get it down, and then have to carry it around all day to all my classes if I'm just going to the student union. That's just, like, I only have to cross one street with cars on it. It just doesn't feel necessary.

Hailey also clarified the differential impact of her varied adjacent practices on helmet use, and how the contextual peer-pressure she feels is unique to this particular adjacent practice.

> I know everyone says it, but it could be embarrassing ... okay I'm wearing a big helmet and I know its safety first but, that's just the truth. I definitely don't think anyone would really care but maybe I wouldn't feel as fashionable or look as good if I were wearing a big helmet you know. [That's] definitely unique to campus. If I was off campus I really wouldn't care if someone saw me wearing a helmet.

The impact of these adjacent practices was also apparent in our informants who shifted their recovered practice from a personal bicycle to the bike sharing bicycles after the program's introduction. The materiality of a bike share program naturally compliments integration with adjacent practices and mixed-transportation practice bundles, since the bicycles can be easily picked up and dropped off at any point. Brandon describes shifting his practice enactment away from a personal bicycle in order to better fit with his goals and adjacent practices,

> Unlike a traditional bike, you can ride somewhere and then lock it up and leave it. You don't have to worry about ... like a traditional bike, the hassle is always like, well what am I gonna do with it? Whereas the [Bike Share], as long as you just walk up to something within the radius, you can just leave it. And so you don't have to worry about to and from, you just have to worry about going there. So on like, game days and stuff, I'll ride it to wherever we're pre-gaming or something. I can just lock it up at that house and I can just leave it there and I don't have to worry about going back and getting it. Or like worrying if it's going to get stolen.

My autoethnographic notes also reflect this difficulty. In my recovery, as I shifted to a new meso-level social practice with its distinct teleoaffectivity from my childhood riding for leisure, I found myself realizing how impactful the adjacent practices that I would be bumping up against were on the elements I incorporated into my performance. Going to school, I had to ditch my small backpack and instead bring a tote bag large enough to stash my helmet in during class. My clothes and hair had to be compatible both with being seen by my classmates and colleagues and engaging in the performance of riding a bike while wearing a helmet. I had to adjust my route, to incorporate both a starting and ending Bike Share station. And my cute wedge boots made the pedaling competencies I thought I was comfortable with difficult and uneasy, and coupled with a misadjusted bicycle, resulted in me being out of breath and flustered upon arrival, which is not in line with my usual meanings in my practice of attending class. The alignment between my usual practice of walking and the adjacent practice of attending class was much smoother than my attempted alignment with bicycling and attending class. Clearly, my recovered bicycling practice was under threat of replacement by the competitive practice of walking.

A later attempt to ride a bike to run errands found me bringing along my water bottle in anticipation of the longer ride. Every bump on my road caused my metal bottle to clang loudly against the metal basket of the bike, drawing unwanted attention to me and my still uncertainly aligned bundle of practice elements as I ventured into busier roads and intersections I'd never navigated before. While my goals of completing the errands quickly matched the teleoaffectivity of the practice I was trying to perform, the materiality of the bottle, which I'd attempted to integrated in anticipation of my own competency and need to rehydrate, undermined my performance, and threatened my recovery of the practice. I chose to walk on the way home instead, and never brought a metal water bottle on a ride again.

The Bicycle Helmet

The helmet emerged as a problematized material element early in our data collection, and thus we probed on this element in our subsequent interviews. As perhaps the most common culturally endorsed element of bicycle safety, in our context both recommended during student orientation and physically printed at eye level in the basket of the PeaceHealth Rides bikes, our informants often struggled with guilt over their difficulty and inability to bring the helmet into alignment with their recovered practice. Emily struggled with her decision not to wear a helmet when she bikes,

> But that's like me making excuses, and if I were using my logical brain, then I would wear my helmet all the time because the most likely scenario is that somebody will be rolling like 10 miles an hour and then hit me, and then I might bash my head… It's just one of those things where it's just a silly mistake that I make every single day that I need to stop doing. I need to learn to just use my helmet more often.

Despite her discomfort, Emily continues to not wear a helmet in her enacted recovered practice, and she's not alone. The overwhelming majority of our informants did not wear a helmet as part of their recovered practice. Indeed, this disconnect between informants' feelings that they ought to be wearing a helmet even though it isn't included in their recovered practice enactment is also present in more extreme circumstances. Mason has had nine concussions in his life, and self-describes that

> I like helmets. I love helmets. Helmets, for me, are exactly like me. They gotta take care of me and hopefully last me a long time. Helmets get banged up, but they save you… I sure do like helmets. I hope they like me.

Mason wears helmets for many of the activities he engages in, such as skiing, football, and waterskiing, but admits that "I feel like everyone should wear a helmet, but again, I'm not gonna wear a helmet biking one mile, or not even." Despite strong alignments between helmets

and many other practices he engages in, Mason struggles to align the helmet with his recovered bicycling practice, despite feelings he should do so.

We assert that this apparent misalignment is actually a result of contrast between distinct meso-level practices within the macro practice bicycling. Because helmets are not integrated into the macro practice of bicycling, as they are in football or skiing, helmet usage for the practice of bicycling varies on a meso level. Julia reflected on this in contrasting her varied meso level bicycling practices, and her varied helmet enactment within each. Namely, while she always wears a helmet for mountain biking, her college commuting practice does not incorporate a helmet, which she puts down to:

> Like that's [mountain biking] what you're doing for the day. That's what you're doing for a moment in time so it's like you're going to get dirty, your hair's going to get messed up, it's already kind of just like that's a part of it. I feel like it's not a form of transportation necessarily. It's a form of recreation. Where I feel like the way I use my bicycle now is transportation, so I want to be able to, I don't know, look put together afterwards…

Similarly, Jacob recalls that "I didn't bring a helmet with me freshman year of college, because I only had a commuter bike. I had no intention of doing any mountain biking." The distinct teleoaffective structure of each practice influences the bundle of elements and prototypical way of enacting each practice. The only reason this appears to be a misalignment is because of our tendency to focus on social practices at a macro level, overlooking the distinctions between meso practices. As Amy describes, helmets are bundled with other meso bicycling practices she observes, but not the practice she recovered.

> [I associate helmets with] kids. I associate parents, especially parents of younger kids. Actually, even just parents in general. Most parents I know wear helmets if they're riding with their kids… and then also very hardcore cyclists, people that like the full body bike suit, that type of person. And that's usually about the only people I see wear helmets all the time.

This is not to say that helmets are never and could never be integrated into our focal practice, merely that they are not part of the macro social practice of bicycling, nor the meso level practice of bicycling for transportation on campus we examine here. Further cementing their absence in this context, helmets are not provided with the PeaceHealth Rides bikes, which are almost exclusively used in the meso practice of commuting in and around campus. By contrast, helmets are very much a part of children's bicycling practices, which many of our informants recount from their own childhood. Helmets are also mandated in bicycle racing, which has made them a staple in competitive cycling.

For our informants, when they create and enact their practice recovery, using a helmet feels like a mistaken identity because they are not returning to their previous childhood practice, nor entering the competitive bicycling practice. As a result, informants like Colton, may bringing forward meanings from when they formerly enacted the practice of bicycling as a child and acquire a helmet in anticipation of incorporating it into his practice enactment. However, observation of the contextualized norms within this meso practice make wearing a helmet feel like a mistake. The only riders our informants observe wearing helmets are, as Katelyn describes, "the people who wear them because they think they're Lance Armstrong." These riders are performing a distinct meso practice from that of our informants, and thus the helmet is often abandoned before it is ever integrated into this enacted recovered practice.

Previous research has shown that riders who wear helmets are perceived as more serious or intense (Walker 2007; Steinbach, Green, Datta, and Edwards 2011). Likewise, Aldred (2013) found that regular or casual bicycle riders sought to distance themselves from "those hard-core sporting cyclists" who wore helmets and other bicycle gear (i.e., Lycra, sports clothing). We

assert that these findings are actually a result of conflating several meso-level practices with distinct goals and norms, across which bicycle helmets (and Lycra) are not evenly incorporated.

Discussion

In this research, we detail the complex process of practice recovery to help describe how consumers go about returning to a practice following a gap in its enactment. This process is distinct from an adjustment of an existing practice, or a practice or ritual replication or reproduction. We find that an enacted recovered practice is the result of an envisioned recovered practice, which itself is formed from a recursive integration of the contextualized present social practice and the remembered social practice. Further, we demonstrate that the gap between the prior practice enactment and recovered practice enactment is often further complicated by changes in the contextual performance space and shifts between meso-level practices. We also show that there are many opportunities for misalignments to occur throughout this process. In this discussion, we begin by outlining the contextual contributions to the practice of bicycling, before detailing what we see as our theoretical contributions to practice theory. Finally, we conclude with the potential practical contributions of practice recovery, as well as identifying several areas for future research.

Engaging in the recovery of bicycling for transportation has a number of consequential environmental, health, and economic benefits on both an individual and societal level (Macmillan et al. 2014; New York City Department of Transportation 2012). Encouraging and understanding the ways in which consumers return to and recover this practice offers opportunities to better facilitate this beneficial practice. Further, as a practice consumers have an

on-and-off-again relationship with (Bonham and Wilson 2012), it's important to understand how practice recovery attempts occur, and how to best encourage and support practice alignment to encourage continued practice enactment. In the context of bicycling, although many consumers recover the practice of bicycling during college, bicycling rates rapidly decline again following age 24 (Breakaway Research Group 2015), thus underscoring the importance of understanding how practice recoveries occur and can be supported in their existence.

Uncovering the process of practice recovery also highlights the significant role of the helmet as a consequential element that is not aligned with all meso practices of bicycling. As the single most effective way to reduce fatal injuries among bicyclists (National Center for Statistics and Analysis 2017), this element is critically important in terms of both health and policy in the practice of bicycling for transportation. Our informants largely fall into the age group that is most likely to ride bicycles, but least likely to wear helmets (Bolen et al. 1998; Breakaway Research Group 2015), which we propose is the result of the bicycle helmet not being included in the prototypical macro practice of bicycling (as it is for skiing or motorcycling), and its exclusion from our focal meso-level practice of casual bicycling for transportation. Thus, finding ways to counter misalignment at this meso and macro-level and provide strategies to realign this impactful practice element of the helmet is important across university campuses and cities where bicycling is a popular and important form of transportation.

Further, the potential of bicycle sharing programs to exacerbate this helmet misalignment by further reinforcing the helmet-free normed performance of the meso-level practice is concerning, especially as these programs expand in popularity and offer more consumers the opportunity to engage in bicycling practice recoveries. These programs are generally viewed as positive forces for good within a community which encourage healthy behaviors and decrease

pollution by increasing community bicycling rates, and use of public transit systems, while decreasing personal vehicle use (DeMaio 2009; City of Paris 2009). However, our findings support previous work which finds that bike share users are significantly less likely to wear helmets (Basch et al. 2015; Goodman, Green, and Woodcock 2014). This has serious implications for public health, as Graves et al. (2014) found a significant increase in head injuries across five cities following the introduction of a local bike sharing program. Thus, it is critically important to analyze the infrastructural system of these programs which may unintentionally compound the helmet's exclusion.

Practice and element misalignment have been discussed before (Shove et al. 2012; Thomas and Epp 2019), but our research foregrounds new opportunities for research on practice misalignment in the context of practice recovery. We foreground the importance of taking a multi-level perspective to understanding practices, in order to recognize the unique distinction within macro-practices, as they are enacted within a contextual performance space and distinct meso-level practice. Theoretically, we contribute broadly to practice theory by introducing the process of practice recovery to the conceptualization of practice formation and abandonment (Shove et al. 2012). Within this process of practice recovery, we have highlighted and discussed four alignment gaps where risks for misalignment are high, (1) incompatibility between the contextualized present and remembered social practice, (2) ineffective translation between the envisioned and enacted recovered practice, (3) inter-practice relations with competitive practices, and (4) inter-practice relations with adjacent practices. Further, we have discussed the impact of the gap in time between the previously enacted and recovered practice, as it can result in shifts in the practice's constitutive elements of meaning, competency, or materiality. These practice element shifts become especially apparent when taking a practice recovery approach, as it

highlights elements of competency, meaning, or materiality that no longer fit into the practice enactment, which wouldn't be apparent with a new practice where you are attempting to link the elements together for the first time.

We have also contributed theoretically by taking a more lifecycle approach that highlights the sayings and not just the doings of practices and emphasizes the dynamic nature of practices through the shifting practice goals and surrounding practices that are prominent across all kinds of consumption venues. By focusing on the individual experience of a practice over time, we gained a more refined perspective on how practices shift, beyond a response to factors such as environmental interruptions (Phipps and Ozanne 2017) or performance decay (Woermann and Rocca 2015) that have been previously investigated. We contributed to the sparse existing theory on element misalignment within a practice. In particular, we focused on several aspects of temporality as a feature of these practices that hadn't been examined in terms of the lifecycle of the practice. Further, we examined how element misalignment occurs as a result of the way the practice is embedded in the larger practice world and thus bumps up against adjacent and competitive practices. Most practice element misalignment research focuses on temporary misalignment across an array of practices, either caused by an event (Phipps and Ozanne 2017) or the natural entropy of practice elements (Woermann and Rokka 2015; Dion et al. 2014). By showing that adjacent practices not only affected the practice as a whole, but could have a differential impact on one element within a practice, we showed how bringing an element back into alignment with a practice is effective not only in the way it fits with that practice, but also in the way that it fits with other adjacent practices. This emphasis on the recovery of a practice under very different surrounding practice conditions as a result of shifts between meso-level practices and contextual performance space is implicit in much of the research on the

reproduction and replication of practices, in the notion that a workaround is devised in the absence of the traditional material elements of the practice (Wallendorf and Arnould 1991), but hadn't been explicitly addressed until this point. Finally, practice recovery allowed us to highlight the differential relationship between an actor and the practice elements, in contrast to previous emphasis on the holistic embodiment of a practice (Shove et al. 2012; Woermann and Rokka 2015). We show that this embodiment fluctuated widely and isn't just a function of the temporary entropy of practice elements, but also a function of the complex way in which the practice itself is embedded in so many other practices.

From a more practical standpoint, it is important to understand practice recovery as a process consumers engage in many times throughout their lives. A quick internet search on virtually any consumer activity will uncover consumers' real desire and experienced difficulty in trying to recover practices when their circumstances are changed. Consumers frequently attempt to come back to something they formerly did, whether it is learning how to ski again, picking up a musical instrument they haven't played since school, going back to needlepoint, or coming back to running following an injury. In each of these cases, this practice recovery is attempted in a new contextual space, and with an altered perspective on the social practice because of the gap in the practice's enactment. Because this process of practice recovery is so prevalent in consumer's lives, we see it as important to understand better, both in terms of how it occurs, and potential misalignments along the way. From a managerial perspective, for both marketers and public policy makers, it is worth considering how to best offer practice recovery opportunities. By knowing more about practice recovery, can we help consumers get back into a recovered practice like running, skiing, playing piano? Our results (see Figure 2.2) indicate that in the process of practice recovery, it is very difficult to integrate learning from the contextualized

present social practice with remembering the previous practice enactment when the consumer has a new identity with new meanings, materials, and competencies. Hence, it is important to help the consumer avoid misalignment by creating a better envisioned recovered practice that accounts for who and where they are now and anticipates the adjacent and competitive practices that will interact with the enacted recovered practice. Specifically, the four alignment gaps we have highlighted offer numerous opportunities for successful interventions in order to facilitate practice recovery.

Recently, the COVID-19 pandemic underscored the difficulty and importance of practice recovery throughout numerous aspects of consumer lives. As consumers return to work, school, restaurants, and gyms, to name a few, and try to recover practices they were forced to abandon in 2020, they face unexpected difficulties and pitfalls as a result of the shifts to their contextual performance space, and perhaps meso-level practices. While we focus on the individual performance and recovery of a social practice here, the notion of practice recovery is also mirrored at the level of a social practice. For example, the pandemic forced abandonment of some practices, such as going to the gym or working in an office, and now we are collectively attempting to recover and return to that social practice on a mass scale. Additionally, we see the resurgence, or recovery of some practices that had fallen out of vogue and declined in engagement but are now growing in popularity again. For example, The Rockefeller Plaza in New York will have a roller-skating rink again in the summer of 2022, for the first time since 1940, because the once largely abandoned practice of roller skating was recovered and reenacted by so many people during the pandemic that it is experiencing a cultural resurgence as a recovered social practice (Margolies 2022).

While informants in this research considered their bicycling practice a return to bicycling, or practice recovery, in future research, it would be worthwhile to consider this difference between newly enacted and recovered practices. Here, we see that consumers envision practice recovery in places where an outsider might comfortably consider it a new practice enactment, but our informants consider it to be a practice recovery. However, in some cases, it seems feasible that consumers may conceptualize a practice they are returning to as a 'new' practice in order to insulate themselves from changes in their materiality, meanings, and competencies. For example, a former competitive runner may describe their current running practice as 'just jogging', in order to reduce comparison between their former and current practices. Future research should address the boundary conditions of a practice recovery as opposed to a new practice enactment, and the possibility that consumers may consider an enactment 'new' in order to avoid negative comparisons with their previous practice enactment.

Finally, we would be interested to investigate other paths consumers take besides practice recovery. When do consumers attempt a recovered practice, and when do they consider the gap between the remembered and the contextualized present social practice to be too large in conjunction with shifts in materiality, meaning, and competency, and choose to pursue not a recovered practice, but instead a related new practice where closing this gap seems more tractable? Many seniors who formerly played tennis are turning to pickleball, a sport that is shorter in duration and easier on the body than tennis (Chen 2017). Conceptually, this shift to a related practice results in a better fit between the consumer's current competencies, meanings, and materials and the contextualized present social practice than does an attempt at recovering the original practice. Understanding when consumers engage in practice recovery versus initiations of related practices could have important theoretical and practical implications across

a wide variety of arenas, from everyday practices like cooking or knitting to more drastic lifestyle adaptations following an injury. Compelling stories of injured veterans seeking to recover beloved activities with restricted capacities and new civilian identities are just one illustration of the importance of understanding consumers' practice recovery efforts.

Bridge

This chapter uncovered the formerly unidentified process of practice recovery and documented the alignment gaps present throughout the process. In the following chapter, we examine and test our model of practice recovery in a divergent context, emphasizing the ubiquity of practice recovery throughout consumers' lives. In Chapter III, we examine how consumers problematize recovery of the practice of exercising at a gym, following the sudden forced abandonment of this practice at a community-level due to the COVID-19 pandemic. Throughout the subsequent chapter, we continue to emphasize the importance of the multi-level perspective on practices accentuated here, as we consider another consequential practice with implications for consumer well-being.

CHAPTER III

PRACTICE DISRUPTION: ANTICIPATING PRACTICE RECOVERY FOLLOWING A COMMUNITY INTERRUPTION

Co-authored material (with Linda L. Price and Sara D. Hodges). The data collection and writing were performed entirely by me, with my coauthors providing editorial assistance.

In 2020, billions of consumers experienced an involuntary disruption to countless daily practices because of the COVID-19 pandemic. One such dramatically interrupted practice was working out at the gym. Consumers across the United States faced a sudden and involuntary interruption to their exercise practices at gyms and fitness centers as all but one state (South Dakota) closed gyms in Spring 2020 (Terlep 2021). Since then, gyms have faced a number of additional full or partial shutdowns, shifting regulations, reduced capacity and changing safety protocols. The increasing availability of the COVID-19 vaccine and loosening restrictions means many consumers are now able to return to the gym, but research is divided on whether or not they will.

Following lockdowns, interest in exercise increased, with more than 2.5 billion health and fitness app downloads by November 2020 (Ding 2020; Shaban 2021). In that same time, the use of live-streaming classes exploded, increasing more than tenfold in the past year (Mindbody 2020). Home workout companies like Peloton, who gained over a million connected fitness subscribers since the beginning of the pandemic (Peloton Inc. 2021), are betting consumers won't be returning to their gyms, as CFO Jill Woodward said, "We think there's a fairly large percentage of the population who are unlikely to, or who may not ever, return to a gym"

(Trentmann 2020). Indeed, some surveys indicate 90% of consumers anticipate continuing to use streaming workouts going forward (Beachbody 2020), and 59% don't anticipate renewing their gym membership once the pandemic is over (Scipioni 2020). Indeed, the fitness industry lost more than $15 billion by October 2020, and 15% of gyms closed permanently in that same time, with several large fitness brands filing for bankruptcy, including Gold's Gym and 24 Hour Fitness (Rodriguez 2020; Club Industry 2020).

However, between 2021 and 2022, Peloton's shares dropped nearly 80% (Thomas 2022). Research indicates that most consumers prefer in-person workouts, with 75% of consumers anticipating eventually returning to the gym (Davalos 2021; Mindbody 2020), and only 15% of consumers reporting feelings that digital fitness platforms have replaced the need for gyms (Mintel 2022). Smartphone tracking of actual physical activity indicated a dramatic decrease during the pandemic (McCarthy, Potts, and Fischer 2021), and 42% of U.S. adults reported undesired weight gain, averaging 29 pounds (American Psychological Association 2021). In October 2021, many gyms were experiencing nearly pre-pandemic attendance levels, although rates since have fluctuated due to concern about COVID-19 variants (Thomas 2021; Felsted 2022). In another survey, 47% of members of the gym Crunch reported dissatisfaction with their home workouts, with 83% intending to return to the gym when it re-opens (Scipioni 2020). Still other experts argue that consumers will choose to move forward with a hybrid approach, combining gym visits with usage of at-home equipment and remote classes (Thomas 2021). Clearly, these contradictory findings and predictions indicate that COVID-19 will have a significant long-term impact on the fitness industry and consumer gym practices, even though we're not yet sure what they will be.

Theoretical Foundations

This research tests and extends upon the model of practice recovery we uncovered in Chapter II (see Figure 2.2). We build upon practice theory, which describes social life as the performance of a series of practices (Schatzki 1996). Consumers engage in countless practices throughout their lives (Warde 2005). Daily practices exist as part of a larger practice world, meaning they encounter and influence other practices in the consumer's larger practice world (Spurling et al. 2013). A consumer's practices are not static: they develop, change, adjust, are realigned, and sometimes, are abandoned (Shove, Pantzar, and Watson 2012). Practice recovery describes the way in which an individual attempts to remake a social performance, or return to an abandoned practice, following a gap in its enactment. Often, remaking a practice occurs within a significantly changed meso-level practice and contextual performance space. Our examination of practice recovery followed the path of a voluntarily abandoned practice, the practice of bicycling, and the process by which consumers attempted to recover that practice years later.

In this chapter, we extend and test this process of practice recovery, in order to examine whether and how consumers anticipate recovering a practice following an involuntary disruption. The COVID-19 pandemic and resulting gym closures and shutdowns allowed us to examine, in real time, consumers' anticipation of the difficulties of returning to an abandoned practice. This context offers a unique opportunity to test our proposed model of practice recovery in a context where consumers are problematizing the process of practice recovery as they consider recovering their gym practices. However, their attempts at recovery are further complicated by the widespread interruption of COVID-19, resulting in attempts to recover many interrupted practices across all sorts of contexts due to shifts to the practice context, surrounding practices,

and constituent practice elements. Further, unlike the context of bicycling examined in Chapter II, the abandonment of gym practices was non-voluntary and sudden. This allows us to examine our proposed process in a divergent context and better speak to the experience of attempting recovery following a sudden interruption, such as an injury or accident.

Past literature has described the formation and habituation of practices, wherein a routinized practice stabilizes over time (Shove et al. 2012; Reckwitz 2002; Warde 2005). Habit strength has been found to be a significant predictor of engagement with many consequential behaviors, including nutrition and physical activity (Gardner, deBruijn, and Lally 2011; de Bruijn et al. 2009). While some past work touches on the disruption of habituated practices (Epp, Schau, and Price 2014; Phipps and Ozanne 2017), it does not speak to the forced temporary abandonment of a practice experienced here. Further while most practice theory research has relied on qualitative data and most research on habit formation has emphasized experimental evidence, this research bridges these literatures, and provides new practice measurements within a more socio-economically embedded model of whether and how consumers recover a previously habituated practice.

Method

Participants

Working with three local gyms, two for-profit (n = 32 and n = 80) and one non-profit (n = 296), we recruited participants in Summer and Fall 2021 who had a gym membership prior to the COVID-19 pandemic. Invitations to participate were sent by the gyms as an announcement in their regularly scheduled newsletter. In total, 408 consumers completed the online Qualtrics

survey. Our sample was majority female (n_{female} = 267, n_{male} = 131, $n_{gender\ non\text{-}conforming}$ = 5, $n_{prefer\ not\ to\ say}$ = 4) and Caucasian (n = 353), with a mean age of 59.50 (SD = 16.19).

Materials

The survey asked participants to reflect upon their exercise habits at three time periods, prior to the COVID-19 pandemic, during the COVID-19 pandemic, and their anticipated exercise behaviors going forward, including their experience returning to the gym if they had at the point of participation. At each stage, we measured how habituated their exercise practices were, using a modified form of the Self-Report Habit Index (Verplanken and Orbell 2003). Open-ended questions throughout the survey also allowed us to capture participants' qualitative reflections on their experiences. During the time the survey was administered, although gyms in Eugene were open again, 40.4% of our participants had not returned to the gym. This allowed us to capture the experience of attempting a practice recovery. This also helped us to overcome some weaknesses of this retrospective survey design. Although we know participants' recollections of the past (the pre- and during-COVID-19 periods) may be colored by their current beliefs and emotional state (Schacter 1999), the process of practice recovery relies not upon what actually happened, but what participants *recall* about their previous practice enactment at the time they attempt a practice recovery. Our survey was designed to capture the elements uncovered in our proposed process of practice recovery in Chapter II, including participants' remembered gym practice prior to COVID-19; the contextualized present social practice in a during- and post-COVID-19 world; their shifting practice enactment and elements of competency, meaning, and materiality; and the impact of the adjacent and competitive practices that bump up against this focal practice. Because this practice was involuntarily abandoned, we also examined the bridging or

replacement practices our participants engaged in while they were unable to exercise at the gym during COVID-19.

Procedure

Participants were invited to participate in a study examining how the COVID-19 pandemic influenced people's exercise and workouts. Participants completed the study on Qualtrics, an online survey platform, and provided their informed consent before participating. The survey took on average 27.78 minutes to complete, and participants were invited to enter a random drawing for one of ten $25 gift cards.

Analysis

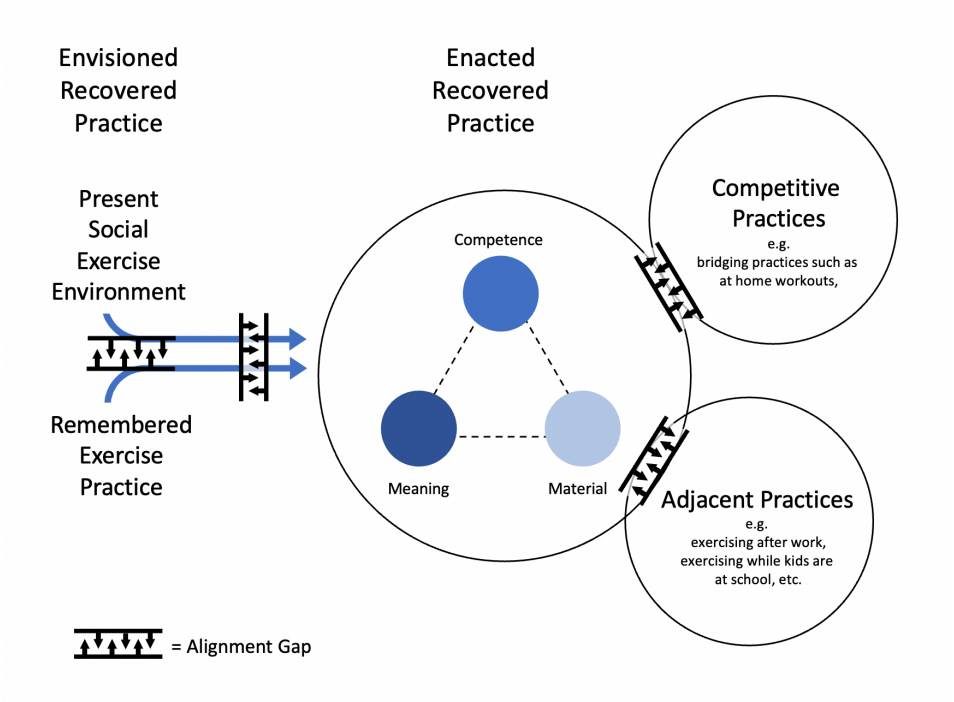
Data analysis was completed in R, version 3.5.2. For the purpose of this chapter, we collapse across gym membership for analysis. Qualitative data was analyzed iteratively, within and between participants, using a constant comparative approach to grounded theory (Glaser and Strauss 1967).

Results

In this chapter, we aim to examine the model we uncovered in Chapter II (Figure 2.2) in a divergent context and at a different moment of recovery, with anticipated, as opposed to retrospective, participant perspectives on attempted practice recovery. Here we first introduce the pattern we observed of practice performance and subsequent interruption and abandonment during the pandemic, before outlining the nuances we find in terms of three practice-level shifts

we observe in the context of consumer practice recovery following forced abandonment of gym exercise practices. As shown in Figure 3.1, we examine the consumer problematization of practice recovery at the point of anticipated and attempted recovery in our proposed model and address the impact of adjacent and competitive practices in this practice recovery space.

Figure 3.1. The Practice Recovery Process in Context



Exercise Practice Prior to COVID-19

Prior to the COVID-19 pandemic shut-down of gyms by executive order of the governor on March 23rd, 2020 (State of Oregon 2020), our participants report that they had strongly-habituated exercise practices, with an average SHRI score of 55.50 (score from 5 to 70, with

higher numbers indicating greater habituation, *SD* = 11.41), and an average frequency of 3.6 times per week (*SD* = 1.47). Additionally, our participants report that on average, 55.46% of their exercise took place at a gym or other indoor exercise facility (*SD* = 30.88), with an additional 35.86% occurring outdoors (*SD* = 29.21), and only 5.79% taking place at home (*SD* = 13.32), and the remaining 2.64% occurring elsewhere (*SD* = 12.57), such as at work or in a community pool. Our participants also report feeling very satisfied with their exercise practices prior to COVID-19 (*M* = 5.64, *SD* = 1.39, on a scale from 1-7, where higher numbers indicate greater satisfaction), and report that they frequently felt they accomplished their exercise goals during their practice enactments (*M* = 3.8, *SD* = 0.82, on a scale from 1, never accomplished, to 5, always accomplished).

Exercise Practice Abandonment

During the COVID-19 pandemic, our participants' exercise patterns shifted drastically. Many of these practices our participants engaged in during COVID-19 were bridging practices, practices they enacted as a stopgap or bridge between their forced abandoned practice and the time in which they anticipated recovering this practice. As a result of this anticipated 'return to normal,' many participants waited to enact any sort of practice, reporting for example, that "for a very long time during the pandemic I didn't exercise at all. I later got resistance bands and pushup bars, which I promptly neglected. I didn't ride a bicycle for a year." Although reported exercise frequency increased (*M* = 4.16, *SD* = 1.68), participants also struggled to habituate their bridging practices, as exhibited by significantly lower reported SHRI scores (*M* = 44.96, *SD* = 15.33, $t(407) = -14.07$, $p < .001$). Additionally, because gyms were closed, participants were forced to abandon their existing practice and alter the location in which they attempted their

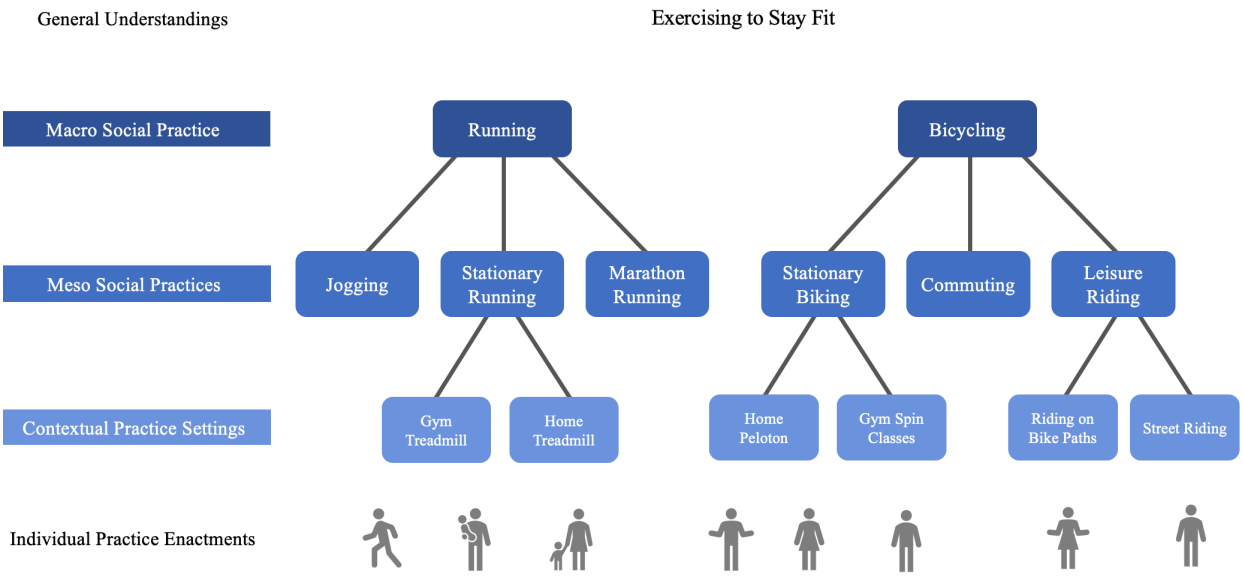
exercise practices, and often, the exercise practice themselves, as we discuss next. Indeed, we observed significant shifts in exercise location, with a drop to only 9.61% of exercise occurring in the gym (SD = 21.33, $t(407)$ = -27.01, $p < .001$), and significantly more exercise occurring at home (M = 33.85, SD = 33.36, $t(407)$ = 17.50, $p < .001$) and outdoors (M = 53.12, SD = 33.27, $t(407)$ = 9.99, $p < .001$). There was no significant change in other exercise locations (M = 3.18, SD = 15.25, $t(407)$ = 0.64, p = 0.52). Our participants also reported feeling significantly less satisfied with their exercise practices as compared to before (M = 3.89, SD = 1.90, $t(190)$ = -15.5, $p < .001$), and feeling that they accomplished their exercise goals significantly less than they did prior to COVID-19 (M = 2.95, SD = 1.14, $t(241)$ = 12.5, $p < .001$).

Multi-Level Practice Shifts

In Chapter II, we emphasize the importance of taking a multi-level perspective to practice recovery by recognizing individual enactments of macro-level practices as nested within contextual performance spaces and meso-level practices (see Figure 2.1). Here, we trace the distinctions between these practice shifts as experienced by our participants in the context of the loss and anticipated recovery of their specific gym exercise practices. We propose that all of our participants' exercise practices are situated within the general understanding of exercising to stay fit. Despite consistency across practices, our participants reported experiencing a variety of significant practice shifts as a result of COVID-19. We organize these practice shifts into three categories, in order of increasing complexity: (1) significant recontextualization within the same meso practice, (2) shifts between meso-level practices within a macro practice, and (3) shifts between macro practices. See Figure 3.2 for an illustration of the multi-level perspective on practices, illustrating the nesting of individual practice enactments within contextual practice

settings, meso social practices, and the macro social practices of running and bicycling, which share the general understanding of exercising to stay fit.

Figure 3.2. A Depiction of the Multi-Level Perspective on Practices



First were those shifts that occurred within a meso-practice, where an individual continued performing the same macro- and meso-level practice as their enactment prior to COVID-19, only it occurred within a significantly changed contextual practice environment. In Figure 3.2, for example, this would be a transition between taking spin classes at a gym and using a Peloton bike at home. One example is a participant who reported that prior to COVID-19, their exercise practice consisted of "5-6 yoga classes per week at the [gym]." During COVID-19, they took "Zoom yoga classes, both live and recorded, 6-7 days a week." Similarly, a participant who reported attending "group exercise classes at the [gym] 4-5 times a week" turned to the bridging practice of "at home work outs with zoom, Facebook video and DVDs."

Thus, while many things stayed the same, including their macro and meso practice and the frequency of their enactment, the context in which they attempted to perform this practice had changed significantly, from being a live, in-person class with peers to a remote or even pre-recorded class performed individually. As other research in this period has demonstrated, consumers largely do not view remote classes as a suitable replacement for their previous exercise practices (Mintel 2022). As one participant put it when describing their exercise practices during the pandemic, "I did Zoom classes (yuck)."

We also observed shifts between meso-level practices within the same macro practice. An example from Figure 3.2 would be the shift between stationary biking and leisure riding. These participants still had practices nested within the same macro-level practice, but enough of the practice teleoaffectivity and element bundle (materiality, meaning, and competency) had changed, generally also coupled with a dramatic context shift, that their bridging practice would be considered a distinct meso-level practice. Many participants shifted between using treadmills to walking or hiking instead. For example, a participant who previously walked on the treadmill for an hour every day at the gym transitioning to "walking 4 miles a day." Another participant described a shift within the macro practice of bicycling, from going to the gym for spinning classes "about 2 to 3 times a week" to going "for bike rides on the river walk." For these participants, while some elements of the macro practice are the same, there are significant changes to the practice bundle as they transition between meso-level practices. For example, the competencies required to ride a stationary bike are distinct from and do not necessarily translate to the competencies needed to pick up a bike and ride down a path.

The most significant shift occurred between macro-level practices, where participants abandoned their macro practice altogether and shifted to an entirely distinct bridging practice,

which requires a completely distinct practice bundle and is coupled with a distinct teleoaffectivity which shares little to nothing with their previous enactment beyond the general understanding of exercising to stay fit. Using our example in Figure 3.2, this would be a transition between running (as enacted, for example running a treadmill in a gym) and bicycling (again, as enacted within a meso practice and contextual setting, for example leisure riding on bike paths). We often observed this shift when the gym or exercise facility closure completely blocked the practice from occurring due to the need for difficulty materiality, such as special equipment or facilities. Perhaps the most salient example of this is swimming, where the closure of pools forced avid swimmers to transition to a completely distinct macro practice. For example, a participant who reported "swimming 3-4x/ week" before the pandemic attempted to bridge using two distinct macro practices, namely "Zoom class once a week" and "some walking." Another participant who swam twice a week increased engagement with their other exercise practices to bridge these closures, reporting that they "increased hiking and walking; (couldn't swim during gym closures)."

Finally, some participants did not shift at any level, because they did not attempt to engage in a bridging practice, or were unable to find a practice they could habituate. Even participants with very well habituated practices prior to COVID-19 struggled to find a replacement or bridging practice during the pandemic. For example, a participant who, prior to COVID-19, went to the "gym 2x per week for cardio (30 min) and weights plus another day where I ran 2 to 3 miles" reported that they weren't able to establish an exercise routine after the gyms closed, "What routine? I didn't exercise for months at the start and since then it's very sporadic, maybe 1 or 2 time per month." Other participants reported trying multiple potential bridging practices, but failing to habituate any of them. For example, a participant who exercised

three times a week at the gym before COVID-19 reported that "I never established a routine that I stuck with. I tried walking, riding my bike, doing the Y's recorded and/or live exercises." Another participant reported that they "Purchased weights, resistance bands: sporadically used them. No routine ever got going. Continued to work in the garden except during excessive heat, ash, and fire." This participant's experience exemplifies another shift we observed, that to a macro practice not linked to their previous practice instantiation by the general understanding of exercising to stay fit. For example, while gardening is a great form of moderate exercise, burning around 330 calories an hour (Centers for Disease Control and Prevention 2022), it is not necessarily viewed as a bridging practice for exercising at the gym, since it is not generally viewed under the macro practice of exercising or as a way to stay fit, instead being linked more closely to other practices involved with home repair or cooking because of their shared general understandings of maintaining possessions or procuring nutrition.

Practice Recovery Looking Forward

In Fall 2021, after our participants had attempted to shift (or given up on) their practice enactment within the general understanding of exercising to stay fit during the COVID-19 pandemic for over a year, they were faced with a choice. Gyms were once again open and vaccines were readily available (Foden-Vencil 2021; Ross 2021) but the choice of whether or not to return to the gym and attempt a practice recovery following this significant gap in enactment was anything but clear. Looking forward, our participants anticipated 43.15% of their exercise would take place at the gym, significantly less than before the pandemic (SD = 32.24, $t(407)$ = -7.36, $p < .001$), and that significantly more of their exercise would occur at home (M = 15.51, SD = 23.85, $t(407)$ = 8.39, $p < .001$), although they did not anticipate a significant change in their

outdoor (M = 37.76, SD = 27.37, $t(407) = 1.48$, $p = 0.42$) or other exercise locations (M = 3.33, SD = 14.85, $t(407) = 0.75$, $p = 0.45$).

Problematizing Practice Recovery

While we observed a variety of movements between practice levels both during and after the pandemic, here we collapse across those to examine the general problems and obstacles our participants experienced as they anticipated or attempted to engage in a practice recovery. In the following section, we outline the various stages and problems our participants face as they consider or attempt a practice recovery of their pre-pandemic exercise practices, using our proposed model from Chapter II (see also Figure 3.1) as a guiding framework.

Will Not Return. 40.40% of our participants had not returned to the gym at the time of our survey, with 18.79% of those participants indicating they did not ever intend to return to their previous exercise practice. Analysis of their qualitative responses revealed a prominent theme of successful habituation of their bridging practice to the point they were no longer interested in pursuing their previous practice. As our participants described, “I've found adequate substitutes,” and “I have created a routine that works that I have been able to consistently maintain.” Of course, some participants also expressed fear over the pandemic and potential variants, which they felt would exclude them from ever returning to a gym, as a participant explained, “It will probably be a long time until we are post-COVID enough for me to feel comfortable returning to the gym.” However, this theme of fear over COVID-19 was much more prominent among those 34.54% of participants who had not returned and felt uncertain whether or not they will in the future. Many participants expressed a desire to return, but uncertainty over what point in time

their return would be, as one participant put it "depends upon the future safety, new viruses, risking my own health condition. but I do miss yoga and the great teachers." Another wrote "If I eventually feel comfortable that the positive Covid rate is decreasing at a high level and we are cleared by state and local officials." These participants found themselves in a state of waiting, not ready or able to foresee a practice recovery in their near future, but hoping for a return at some unknown point when, as one participant put it, "When Covid is gone gone gone."

Anticipation. The 46.67% of participants who have not yet returned to the gym, but do intend to, are considering how to enact a recovery are at the first stage in our proposed model. Namely, they are working towards creating an envisioned recovered practice, through a process of learning from the contextualized social practice they see around them currently while simultaneously integrating this with how they remember enacting the social practice prior to COVID-19. The greater the alignment gap between the current and remembered social practice, the more difficult we proposed recovery would be. We observed this in particular as a result of changes to their gym when they reopened following COVID-19. As one participant who hopes to return wrote that "I hope more classes will be added too. I understand why so many classes were cut, but I hope that with more members returning, more classes will be added." Changes to the gym, in particular their class or equipment offerings, made it difficult for participants to envision a recovery if all the elements of their previous practice enactment were not available. As a participant explained, waiting for access to a critical material element in order to enact one gym exercise practice also prevented them from recovering other in-gym exercise practices, "When the pool is open for freestyle swimming, I'll go back, and will probably do some exercising in the

weight room, too." Many gym changes also coincided with life changes, such as shifts in work or childcare schedules, compounding this difficulty of creating an envisioned recovered practice. Many participants reported struggling with the new "less than ideal" gym schedules, or not being able to return because of facility closures, stating they would return "at some point when childcare is offered again." Indeed, participants indicated that changes to their gym (M = 0.69, SD = 1.10 on a dual-ended 5-point scale from -2.5, much easier, to +2.5, much more difficult) and changes to their life (M = 0.66, SD = 1.01) made returning to their previous practice more difficult. As participants explained, many were waiting for life changes they anticipated, such as "I plan to return to the gym when I return to in-person work" or "Once my youngest starts preschool."

However, we also observed shifts in our participants' comfort as they anticipated engaging with the practice as they remember performing it prior to COVID-19. For example, several participants cited concern about their body in the time since they last engaged in the practice, saying that "body shame and uncertainty" had prevented them from attempting a recovery, and citing "the extended time off [which] caused my body to develop issues" as an obstacle to attempting recovery. Other participants felt the pandemic had caused them to reevaluate the routines they were comfortably habituated in before COVID-19 and assess whether or not they wanted to recover them at all. For example, several participants reassessed whether they enjoyed working out around other people, something they had been doing consistently before. As one participant explained, "I will no longer feel comfortable exercising indoors with strangers." Another participant, who had been going to a gym frequented by college students 3 times a week for an hour and a half each, had the following reflection when

considering a recovery of this practice, “I don't enjoy working out around other people, especially college students.”

Actuality. For the 59.6% of our participants who had attempted a practice recovery and returned to the gym to try working out, the process was anything but seamless. Many participants indicated they experienced unanticipated changes, either to their gyms or themselves when they tried to enact their recovered practice, in line with the second alignment gap in our proposed model. Although the majority of these respondents (74.38%) reported their physical fitness was about the same as they anticipated when they went back, 15.70% of participants reported their physical fitness was worse than they were anticipating, and really struggled with changes to themselves and their body. As one participant described, “my endurance is shit and it's really difficult getting back on the horse.” Similar to our participants who had difficulty envisioning a recovered practice, many participants who returned to the gym were surprised and disappointed in the available offerings, reporting issues such as “no racquetball since they have turned these places into storage dumps” or “[Gym] has no basketball even though they have 6 courts. Super lame.” These materiality gaps forced participants to attempt a recovery of an adjacent and often less-preferred practice, for example working out using equipment rather than returning to classes, since as one participant described “classes have started, but not any I would take.”

Indeed, participants who have returned reported significantly lower satisfaction with their gym exercise practice upon return ($M = 5.27$, $SD = 1.49$) as compared to their satisfaction before abandonment ($M = 5.91$, $SD = 1.22$, $t(190) = 5.61$, $p < .001$). We observe that changes to their gym and their own lives forced them to reevaluate and alter their envisioned recovered practice, excluding anticipated elements that weren’t available, subbing in alternate elements, and even

shifting between meso practices to accommodate the reality of their contextual practice environment. Participants reported bringing in their own materials to compensate, such as "I miss the stretch straps, so need to bring my own in," or adjusting their routines because spaces they used before were no longer available,

> There's no place to sit down and wait for a class to start or talk with friends. The front room is reserved for staff, which I understand, but sometimes I get there early on the bus, and have to wait half an hour for my class, and the locker room is no longer available to sit in with a book or magazine.

Many participants missed their previous offerings, or offerings they anticipated being available, reporting that they "Can only take one class each day. Have to register for classes" or that "ma[n]y machines, weights etc. had been removed to create social distancing space making it harder to access desired equipment or do certain movements." As one participant who was forced to adjust their practice recovery by attending a new class explained, "They canceled the dance class I had been attending for 20 years, which was why I joined the [gym] and maintained my membership there."

Finally, some participants struggled to recover practices that were habituated before, not because of external changes, but because of changes to their motivation and practice inertia. As one participant explained, parts of her practice recovery came easily, while others have been a struggle.

> Basically, the routine I had established pre-pandemic was completely disrupted and getting back into the habit of going has been extremely difficult, with the exception of going to the dance class at the new facility. I love the dancing, so re-establishing it as part of my routine has been easy. Not so for the weights and elliptical. Those I did pre-pandemic because I knew I needed that type of exercise and it had become routine. But I don't particularly enjoy that exercise, even though I do feel a sense of satisfaction when I do that type of exercise. Satisfaction, but not enjoyment. Trying to get back in the routine of doing some that is not particularly enjoyable has been very difficult.

Here, we see that the interruption of an existing practice alone, even in the absence of significant external changes to the contextual practice environment can be enough to disrupt a practice held together by inertia alone. Echoing the findings of Mata et al. (2009), who find intrinsic (as opposed to extrinsic) motivation positively predicts related goal perseverance, here we observe and posit that intrinsic motivation to recover a practice, especially one whose enactment itself brings internal rewards like joy is able to overcome barriers to recovery more easily than those practices that rely upon more external alignment, such as the need to do things that are "good for you."

The Greater Practice World. Finally, our model recognizes the impact of the greater practice world, and portfolio of colliding practices our participants engage in on a daily basis (Warde 2005; Spurling et al. 2013). We identify two categories of surrounding practices in the final alignment gaps, competitive practices that can displace or replace each other (Scheurenbrand et al. 2018), and adjacent practices, that connect to the focal practice in some way and can hinder or enable its performance (Shove et al. 2012). We observe competitive practices in this context as well. Indeed, companies like Peloton set out to be a competitive practice and replace gyms at the beginning of the pandemic (Corba, Stenovec, and Versano 2018). Some participants say they will never return to a gym in the future, expressing satisfaction with a competitive practice, often in the form of the bridging practice they turned to at the beginning of the pandemic. For example, one participant writes that "I have found that I really enjoy running again, as well as using my bike at home." Other participants invested time and energy into facilitating this bridging practice and are sticking with it in the future because it fits better with their daily lives, "Over COVID, I found a workout routine at home that I've

successfully been following and I like it more than my old gym routine, plus it saves me time because I can do it at home. And I'm now building an at-home gym." Another participant who used to work go to a gym to work with a trainer writes of their competitive practice, "I have a new trainer who comes to my house who is FANTASTIC."

We also see the impact of adjacent practices in this context. The COVID-19 pandemic is a unique context to examine practice recovery in, because countless daily practices, not just our focal practice of exercising at the gym, were interrupted. As a result, when our participants anticipate or attempt to enact a practice recovery, they also have to consider the numerous contextual changes and perhaps simultaneous practice recoveries they are attempting. Nowhere is this more apparent than in their adjacent practices, and the considerations they raise for recovery of their previous gym exercise practices. Adjacent practices can both encourage, and discourage practice enactment, as one participant who "hasn't exercised since the pandemic started" and currently has no plans to return illustrated. Before the pandemic, she would "wake up at 4:45am to go to the gym and walk 2-3 miles before work." Now that her job is remote, the adjacent practice of going to work disappeared, which has in turn exacerbated the abandonment of her existing gym exercise practice.

Indeed, going to work was a facilitating adjacent practice for many participants, and the shift to at-home or remote work has thus increased the difficulty of enacting a recovery, as a participant described, "Gym is close to work but inconvenient to my home" so traveling there is "incurring additional cost." However, the reverse is also true, with participants anticipating an attempted practice recovery as facilitated by their return to work, "Working remotely has made this option less available. Once I'm back to full time [at work] I hope that I will return to the [gym] as before." This is especially true for participants who built exercise into their daily

commute, such as walking or bicycling, with a participant reporting that “When work opened back up, I did my walking commute again.” Another adjacent practice that frequently hindered practice recovery, especially in light of gyms closing childcare centers was the shift in care schedules for small children. Many parents couldn’t anticipate recovering their exercise practices because of their children, some because of vaccine availability, “I have a young child that has not been able to get the vaccine yet. I will not return until he is able to be vaccinated.” Others struggled with “lack of childcare” or hoped that they would return to the gym “In the fall when kids start school.” A final consideration is the adjacent practice of transportation, which was drastically impacted by COVID-19, especially for those participants who rely upon public transportation, which was drastically cut back as a result of the pandemic (de la Garza 2020). As one participant explained, they’re not sure if they will return to their yoga studio, because “one of the studio's locations is no longer on a bus route, so it's going to be harder to get there.” Thus, we find support for our assertion that the adjacent and competitive practices in the surrounding practice world can drastically impact or even interrupt individual practice recovery enactments.

Discussion

Our goal for this brief chapter was to examine, in a distinct context, the model we proposed in Chapter II. In particular, the real-time in-situ approach we were able to take in this research allowed us to examine how consumers approach recovering a practice in the moment, as well as the problems and difficulties they face as they move throughout our proposed model and encounter alignment gaps with envisioning a practice recovery, enacting their envisioned recovery, and the intersection of their enacted practice with other surrounding competitive and

adjacent practices in the larger practice world. This context also emphasizes the importance of taking a multi-level perspective to practice recovery, underscoring the increasing difficulty and complexity of recovering a practice as the consumer shifts between distinct practice contexts, meso-level practices, or even macro-level practices. This research further illustrates how people go about recovering a practice and thinking about the obstacles they encounter across these difficult multi-level transitions.

While we hope examining our model in the context of a real-world phenomenon, COVID-19, serves as a compliment and distinct test of the model we proposed in Chapter II, we recognize that it is not without complexity. Our test of the model is based on the qualitative and quantitative results of a single survey with a relatively small sample size. Although the population and context are distinct, it is tested within the same medium-sized city as the previous chapter, and as such, homogeneous demographic and geographic factors cannot be ignored. We are also still in a period of uncertainty with relation to COVID-19, and thus the actuality of what our participants will do is still unknown. While we collected anticipatory data on their future practice recovery or intentions to continue a practice recovery enactment, only time will tell if their intentions and future behaviors are aligned. We strongly believe this research would benefit from continued sampling over time to see how and whether our participants engage in practice recoveries, and what influences their continued enactment (or not) of these attempted recoveries.

We also suggest there are many areas for future research both in this context, and with relation to our perspective on practice theory. A particularly interesting avenue would be to consider a consumer's transition between practices with distinct general understandings. We saw hints of this as some of our participants transitioned between practices that fall under the general understanding of exercising to stay fit and practices like gardening or doing chores which we

would argue fall under a distinct general understanding of maintenance or upkeep, and in which exercise is more of a side-effect or peripheral benefit rather than the teleoaffective structure of the practice itself. These transitions are not accounted for in our model, and examination of how consumers engage in them could be beneficial for understanding how to best support individuals as they shift between all sorts of different practices throughout their lives, as well as suggesting practical ways to encourage consumer engagement in healthy behavior or exercise as a part of another practice. As we move forward, from a practitioner perspective, we hope our model and the difficulties and problems our participants faced as they attempted to recover their previous gym exercise practices could help to illuminate areas in which policy makers and marketers could provide interventions to better encourage and enable consumer recovery of valuable practices which support consumer well-being. COVID-19 has forced numerous daily practices out of enactment, and as this chapter demonstrates, we should not expect consumer recovery of these practices to be easy or straightforward. By better understanding the pitfalls of this process, we can hopefully assist consumers to overcome them and return to the valuable practices they have lost as a result of the pandemic.

Bridge

In the following chapter, I move from the examination of an individual practice which experienced a community-wide interruption, to the exploration of individual consumer practices which collectively impact community-level outcomes. Specifically, while this chapter examined a practice, exercising, with significant implications for health and well-being at an individual level, the subsequent chapter examines individual practices whose outcomes impact community

well-being through the care and stewardship of an inalienable community resource, the bicycle sharing program. The next chapter is also community-focused, working with stakeholders in the same community as examined in the previous chapters, Eugene Oregon, and continues our examination of the bicycle sharing platform from Chapter II.

CHAPTER IV

CONSUMER PRACTICES OF DISTRIBUTED MAINTENANCE IN ACCESS-BASED CONSUMPTION PLATFORMS

Co-authored material (with D. Matthew Godfrey and Linda L. Price). The data collection and writing were performed entirely by me, with my coauthors providing editorial assistance.

What leads to the emergence of prosocial collective practices in the absence of centralized control? Sharing has "probably been the basic form of economic distribution in hominid societies for several hundred thousand years" (Price 1975, 12). In the past decade, the term sharing has been extended to market-mediated sharing platforms such as Airbnb, ZipCar, and Bird. Much debate surrounds whether and how these platforms constitute or contribute to "sharing," (c.f., Belk 2010; Arnould and Rose 2016; Schor and Attwood-Charles 2017). Without question these platforms have fundamentally reshaped markets for accommodation and transportation and moreover are seen as an important building block for transitions to sustainability (Ritter and Schanz 2018). Revenue from this sharing economy is forecast to continue its exponential growth from $15 billion in 2013 to a projected $355 billion by 2025 (PriceWaterhouseCoopers 2015). Sharing platforms have been established (with varied success) offering access to everything from homes (Airbnb, Vrbo, Stayzilla), parking spaces (JustPark), cars and RVs (ZipCar, Turo, RVShare), rides (Uber, Lyft, Sidecar), power tools and other equipment (SpareToolz), bicycles and scooters (CitiBike, Lime, Bird), designer clothes (Rent the Runway), to anything else you might want to rent from your neighbors (Share Some Sugar).

Despite this increasing market shift from a traditional ownership model to the collaborative consumption access-based model, these systems and the materials they employ remain vulnerable to the same physical forces that break down the materials consumed in a traditional ownership-based market. For example, consumer use and misuse of the automobiles in an access-based platform like ZipCar necessitates continual refueling, cleaning, and maintenance to avoid disruptions to the system and consumer experience (Bardhi and Ekhardt 2012; Dowling, Maalsen, and Kent 2018; Costain, Ardron, and Nurul Habib 2012). While traditional ownership-based consumption relies upon owners to perform these repair and maintenance tasks (Gregson, Metcalfe, and Crewe 2009), access-based platforms generally use some combination of the following to avoid or accomplish repair and maintenance: (1) discouragement through fees or rules to prevent damage, (2) a dedicated maintenance regime which employs repairers (c.f. Denis and Pontille 2017), or (3) a distributed maintenance regime which relies on networks of maintenance practices carried out by consumers (c.f. de Laet and Mol 2000). Distributed maintenance regimes and whether and how they emerge in an access-based platform are of particular interest and importance. Consumer researchers have demonstrated the power of such prosocial collective stewardship in a variety of domains (Curasi, Price, and Arnold 2004; Schau, Muñiz and Arnould 2009; Visconti et al. 2010). However, past research suggests their very existence is paradoxical. Because users in an access-based platform don't experience legal or perceived ownership over the material goods they access, we would not expect consumers' engagement in repair or maintenance practices (Costain et al. 2012; Dowling et al. 2018; Bagga, Bendle, and Cotte 2019), and yet we see that such prosocial collective stewardship practices can evolve through distributed repair. Secondly, the associated labor costs for maintenance and repair in dedicated regimes are a huge financial burden to access-based

platforms (City of Redmond 2016; Economic & Planning Systems, Inc. 2013), and as such, encouraging user practices of distributed repair is crucial to ensuring the financial viability of these systems (Li, Jia, and Liu 2021). Finally, despite the proliferation of research on sharing and access-based platforms, there has been scant attention paid to the maintenance and repair needs of these platforms. In particular, research has neglected to examine the emergence, motivation, and strategies of consumer user-maintainers which underlie these distributed maintenance regimes. In this paper, we examine how consumers and organizations can collectively manage the use and maintenance of objects within an access-based consumption platform through stewardship practices of distributed repair. We find the emergence of collective prosocial stewardship practices in the maintenance of bicycles shared through an access-based platform viewed as an inalienable community resource. We discuss both the emergence, motivation, and strategies of consumer user-maintainers who engage in collective prosocial practices, as well as the implications for consumer behavior and marketing and policy practice.

Theoretical Foundations

In this research, we foreground the doings and meanings around shared objects in access-based platforms in the context of the use, abuse, and repair of the system and its objects. We examine an access-based platforms that centers on the provision of material goods, because in this consumption context, maintenance and repair is especially expensive, time-consuming, difficult, and yet essential to the continued value of the program (Rinkinen, Jalas, and Shove 2007; Graham and Thrift 2007). Despite the colloquial use of ‘car sharing’ or ‘bike sharing’ to refer to such programs, the material goods accessed in these programs are typically owned by the

platform as opposed to another consumer. The platform provides temporary consumer access to these goods, such as vehicles (e.g., Zipcar), clothing (e.g., Rent the Runway), or DVDs (e.g., Redbox), in exchange for monetary compensation. We refer to such programs, including the bicycle sharing program investigated here, as 'access-based consumption platforms' (Bardhi and Ekhardt 2012; Benoit et al. 2017). Access-based platforms are especially prone to material disruption because of the increased use of goods, lack of perceived ownership by users, and decreased system oversight. A platform that cannot provide functional material goods when and where they are needed will not succeed in enabling consumer practices, and yet consumer use and abuse of these objects increases the complexity of fulfilling this most basic goal. Access-based platforms attempt to incentivize careful consumer use of the platform and its goods by punishing users who abuse or neglect accessed goods, with limited success. However, despite expectations to the contrary, in some access-based platforms, users emerge with the desire and intent to maintain the system as they are able to. We examine these user-maintainers as they function in a distributed-maintenance regime in order to understand how such prosocial stewardship behaviors emerge, and what the user-maintainers' range of motives and strategies are.

In what follows, we first outline the role of material objects in the practices facilitated by these platforms. We outline previous literature on repair and maintenance and distinguish between dedicated and distributed regimes of maintenance, as well as presenting three key reasons access-based platforms are especially vulnerable to disrepair and the strategies such platforms employ to repair material objects and the system as a whole. Finally, we outline what we see as three theoretical perspectives that together may account for the emergence of these

prosocial collective practices: stewardship, inalienable wealth, and commons-based peer production.

Material Goods and Consumer Practices

This recent growth of access-based consumption platforms represents a trend toward access-based liquid consumption, which questions the value of "solid logic, with its focus on saving money and caring for and maintaining possessions" (Bardhi and Eckhardt 2017, 588). Although these programs have gained visibility as a "new breed" of consumption (Dua 2020), renting in its many forms (e.g., cars, tools, apartments, hotel rooms) is by no means a new consumption phenomenon (Schaefers, Lawson, and Kukar-Kinney 2016). This rebranding of an old form of consumption is at least partially due to the tendency for ownership to be valorized and rental stigmatized in American consumer society (Walsh 2011, Ronald 2008).

As most access-based consumption platforms center around the provision of durables or material goods, such as bicycles, cars, clothing, or tools (Lovelock and Gummesson 2004), we focus specifically on this form of consumption, as opposed to platforms offering access to services or virtual goods. These programs facilitate consumer practices such as bicycling or driving, by providing necessary but difficult (due to expense or practicalities like storage when not in use) material objects to consumers, thus reducing barriers to entry for these practices. However, the material objects employed in these programs, and indeed, material objects in general, are not eternal. As Graham and Thrift pointed out, "The world is involved in a continuous dying that can only be fended off by constant repair and maintenance" (2007, 5-6). As a result of use and the passage of time, objects wear and break down, thus disrupting the consumer practices they were intended to enable.

Practice theory emphasizes the importance of these objects, as consumer practices are "intrinsically connected to and interwoven with objects" (Schatzki 2002, 106). Thus, objects both enable and constrain physical and mental activities (Reckwitz 2002), and the doings and meanings around such objects are central to the practice itself. As these material elements gradually wear or break down, they require repair and maintenance to keep the practice from becoming misaligned or abandoned. A ZipCar, just like a consumer's personal vehicle, requires refueling, regular maintenance, oil changes, tire rotation, not to mention cleaning both externally and internally, among other maintenance and repairs (Bardhi and Ekhardt 2012). In most highly developed market economies, repair and maintenance are hidden behind what Graham and Thrift (2007) call a "Myth of Order." That is, in societies that fear fragility, repair work is kept out of sight and conducted by a dedicated maintenance regime of employed repairers and technicians. Indeed, even for individually owned objects, the assumption they will be 'ready-to-hand', as Heidegger puts it, is so strong that attention to repair or ownership is often only paid once the object breaks down and demands attention (Verbeek 2004). This sudden interruption not only signals a destruction of the object, but also a destruction of the practices that rely upon this material object, and the adjacent practices that rely upon those practices – a whole world that cannot be restored until the object is repaired (Godfrey, Price, and Lusch 2021). The onus for repair and maintenance of an item generally falls on the owner of the object, who either conducts the repair themselves, or contracts the task with another. On a larger scale, maintenance departments for cities and corporations function as dedicated regimes for maintenance and repair of managed goods such as buildings, roads, and power grids. Thus, as Denis and Pontille describe, dedicated maintenance "enacts what we might think of as two-sided objects, fragile in the eyes and hands of maintainers, reliable in the eyes of users" (2017, 3).

By contrast, in distributed maintenance regimes, "material fragility is a shared concern and maintenance is a distributed practice… [and] in the hand of 'maintainers-users' objects are always changing, living entities" (Denis and Pontille 2017, 16). Distributed maintenance regimes invite everyone to be a part of the repair and maintenance increasing the visibility of the work of repair and decreasing the binary opposition between broken and fixed observed in dedicated maintenance regimes. However, even in the case of very successful enacted distributed maintenance regimes, such as the Zimbabwe Bush Pump, ownership matters, "maintenance carried out by the community [like] sweeping aprons and keeping the water run-off clear… is practical in units owned by a few families, but far less so in heavily used communal units, where there is no sense of ownership" (Morgan, as cited in de Laet and Mol 2000, 246). Indeed, this is one reason, as we discuss next, that repair and maintenance in access-based platforms is so difficult and precarious.

Repair in Access-Based Platforms

While all material objects require maintenance and repair with use, access-based platforms are especially vulnerable to forces that break down and wear objects, because of increased object use, increased decentralization, and a lack of ownership. Here, we detail how each of these factors increases the repair and maintenance needs of objects in access-based consumption platforms.

Increased Usage. Accessed or shared goods are used more frequently than privately owned goods. A central principle of many sharing, collaborative, and access-based consumption platforms is the reduction of consumer waste and overconsumption (Fremstad 2015). Vosin

reports that “80% percent of the things in our homes are used less than once a month” (Knowledge@Wharton 2015). Indeed, a common anecdote among proponents of the sharing economy is that although almost every American household owns one, the average power drill will be used for only 12-15 minutes in its entire lifetime (Botsman 2010; Chetsky as cited in Friedman 2013). Access-based and collaborative consumption platforms offer a solution to this. Instead of buying and storing an infrequently used material good, simply pay to access one when you need to. However, increasing the usage frequency of a good also increases its maintenance and repair needs, meaning it may require more frequent maintenance than its individually owned and utilized counterpart.

Program Decentralization. Access-based consumption platforms, while similar to traditional rentals, have innovated in several ways, perhaps most notably through use of technology to increase the decentralization of the access process. Whereas renting a car in a more traditional rental model might involve going to a rental car agency and filling out paperwork in person before being handed the keys, later followed by a similarly lengthy return process featuring an inspection of the car and fees for cleaning and necessary repairs, many car access-based consumption programs such as ZipCar now opt to reduce labor cost and direct staff interaction by allowing consumers to use an app on their phone to reserve and unlock a car parked in a designated neighborhood space by the previous user (ZipCar 2021). However, this decentralization and decreased direct oversight by the platform increases the potential for object misuse, neglect, and abuse within these programs. Bike and car sharing programs utilize GPS technology to track the vehicles, but rely upon the observations of their dedicated maintenance staff or reports from users to alert them to other issues, such as flat tires, trashed or dirty

vehicles, or broken parts. While programs often dole out fines for more egregious instances of abuse, past research suggests that increased anonymity increases the likelihood of bad behavior (e.g., Reicher, Spears, and Postmes 1995; Zimbardo 1969). Thus, abuse and neglect of the material objects in access-based platforms is more likely given the program structure, where users access objects without direct human interaction with other users or the platform itself.

Care and Ownership. Consumers interact with rented objects differently than they do with objects they own. Consumers don't hesitate to leave hotel rooms in a mess or take rental cars on roads they wouldn't drive with their own cars. As an informant in Bardhi and Ekhardt's (2012) research reports, "I'll double park a Zipcar real quick if I'm just running into Starbucks or something. Which I wouldn't want do with my car. Or, I'll parallel a Zipcar in a tighter spot than I would with mine because it's not mine. I'm just not worried about it." Much of this abuse or neglect can be attributed to a lack of ownership. As Durgee and O'Connor (1995, 92) write, "purchased items are often said to own the owner and demand constant service and attention, rental items often involve the opposite phenomenon, as renters abuse and neglect rented items… one difference between owning and renting might be characterized as the difference between tyranny of the object and tyranny of the renter."

The endowment effect has long shown that owning an object can increase its perceived value to a consumer (Kahneman, Knetsch, and Thaler 1990; Thaler 1980), and thus improve their treatment or stewardship of it (Peck et al. 2021). Additionally, perceived or psychological ownership, the mere *feeling* of owning an object, even without legal ownership, has been found to have a similar effect on object valuations (Peck and Shu 2009). Indeed, past literature suggests consumers can develop feelings of ownership for un-owned objects in many ways, including

touching (Peck and Shu 2009), controlling (Pierce and Jussila 2011), naming (Stoner, Loken, and Blank 2018), spending time with (Strahilevitz and Loewenstein 1998; Pierce, Kostova, and Dirks 2003), and assembling (Norton, Mochon, and Ariely 2012). Similar effects have been observed in egocentric categorization theory. Consumers perceive owned objects as being more similar to themselves, a finding that holds even without explicit ownership (e.g., wearing headphones in a lab, Weiss and Johar 2016).

Research on ownership in collective consumption has been mixed. Griffiths and Gilly (2012) found that when consumers stake individual territorial claims over collective spaces, they impede their use by others. However, access-based-platforms have also attempted to promote psychological ownership, such as ZipCar's individual naming of their vehicles (e.g., "Mia Mini"). Such efforts have been without success, as the psychological ownership of material goods by consumers in access-based consumption platforms has not been observed (Bardhi and Ekhardt 2012; Dowling et al. 2018). In many ways, the fate of shared or accessed goods reflects Hardin's (1968, 1244) the tragedy of the commons, "Ruin is the destination toward which all men rush, each pursuing his own best interest in a society that believes in the freedom of the commons." Common spaces and shared goods, such as beaches (Gunter, Ditton, and Olson 1987) or public housing (Forrest and Murie 2014), often suffer neglect or abuse at the hand of self-interested consumers. Liu and Chen (2020, 924) suggest this also holds true for the 'quasi-public goods' in access-based consumption, where "the use of products without care will make the material loss and product wear speed exceed the normal loss rate in the private mode, accelerate depreciation and shorten the life of sharing products."

Platform Strategies for Repair and Maintenance

To address this increased need for repair and maintenance, access-based platforms use a combination of three strategies: (1) fines and regulations, (2) dedicated maintenance regimes, and (3) distributed maintenance regimes. The establishment of rules and regulations, accompanied by fines, serve to discourage bad behavior on the part of users. For example, ZipCar charges $50 an hour for returning a car late, $30 for failing to refill the gas tank, and $139 for roadside assistance if you do run out of gas. While fines might lower the incidence of disrepair, repairers are still needed to address these occurrences and conduct routine maintenance. For this, access-based platforms can employ dedicated maintainers, generally hired employees, or a contracted maintenance company, or the platform can attempt to encourage users to carry out repair in a distributed maintenance regime. As operations costs, including repair and maintenance, make up the majority of an access-based platform's costs over the first five years (e.g., 67% of projected costs for Redmond's proposed bike share program (City of Redmond 2016)), access-based platforms are strongly incentivized to encourage the cheaper distributed maintenance regime that relies upon repair practices carried out by user-maintainers.

Prosocial Collaborative Practices

Past research gives us every reason to believe user-maintainers will not emerge in access-based platforms. By all accounts, the lack of ownership should make users more likely to mistreat these objects than to repair them (Durgee and O'Connor 1995; Bardhi and Ekhardt 2012). Even if these platforms are viewed as a public good, the tragedy of the commons and past research indicates consumers are more likely to take advantage of these goods than they are to care for them (Hardin 1968; Harnik and Merolli 2010; Liu and Chen 2020). And yet, in this

research, we present empirical evidence of the existence of such user-maintainers and their consequential participation in distributed maintenance practices for access-based consumption platforms. Here, we outline several theories that may help account for the emergence of such prosocial practices, including stewardship, inalienable wealth, and commons-based peer production.

Stewardship. Prior theory has argued that business practices need to move beyond individual ownership perspectives toward an ideal of stewardship, which is a perspective "in which organizational actors see greater long-term utility in other-focused prosocial behavior than in self-serving, short-term opportunistic behavior" (Hernandez 2012, 172). Actions such as care and maintenance are critical components in the stewardship of access-based consumption platforms, since the actions of individuals impact the consumption opportunities and experiences of the collective (Bardhi and Eckhardt 2012). Building off Pierce et al. (2003), Peck et al. (2021) suggest that spending time and getting to know a space well, for example a public park whose trails a consumer knows like the back of their hand, facilitates stewardship behaviors for this space, such as picking up litter or donating money. However, Peck et al. (2021) further find that this effect disappears in the presence of cues (e.g., attendance signs) which signal the use (and therefore responsibility for stewardship) of the public good by others.

This finding is of concern for access-based platforms, whose very nature signals their use by others. The prominent and distinctive branding of their material objects call attention to both the object's accessed status and increases the likelihood of consumers noticing these goods in use. While "a stolen apple doesn't look any different from any other" (Snare 1972, 200), an accessed car bicycle looks very different from a personally owned one (and indeed, from an

equivalent good rented in a more traditional setting, e.g., renting a car from Avis). Additionally, the use of these platforms by a sufficiently large number of other users is also a key driver of their success, meaning consumers in a successful access-based platform are bound to encounter other users during their practices, threatening the development of stewardship behaviors as described by Peck et al. (2021).

Peck et al. (2021) and Hernandez (2012) both point to feelings of psychological ownership as the mechanism by which individual stewardship behaviors develop. While psychological ownership over material goods in access-based platforms has not been observed, Fritze et al. (2020) suggest increasing psychological ownership of the *service* increases service use and decreases material ownership. While Peck et al. (2021) demonstrated psychological ownership of a material resource, Hernandez (2012, 182) suggest that psychological ownership can include "an entity, such as an organization, or more broadly, an idea or mission." Therefore, we suggest that psychological ownership over the mission or goals with which a platform is aligned can drive the emergence of consumer stewardship behaviors, even in the face of increased usage cues such as in the context of an access-based platform.

Inalienable Wealth. Inalienable wealth consists of "those possessions people should not give or sell but keep within the confines of a close group" (Curasi et al. 2004, 609). Inalienable wealth can take many forms, including national treasures, tribal lands, religious relics, family heirlooms, and intergenerationally gifted assets (Geary 1986; Weiner 1994; Curasi et al. 2004; Bradford 2009). Viewing objects as inalienable wealth influences the use, care, and disposition of these objects. Inalienable wealth is deeply tied to group identity, distinguishing and representing the group in a way that is shared and reproduced by participating individual

members (Curasi et al. 2004). Inalienable wealth can be possessed, but not owned, as the group itself rather than an individual holds rights over inalienable objects. Caretakers of these objects preserve and share inalienable wealth with other group members, even at the risk of loss or damage, which is deeply feared (Godelier 1999; Curasi et al. 2004). Inalienable wealth is intended to be passed forward in time, cared for, protected, and preserved, carrying forward group identity and meanings for future generations (Bradford 2009). Thus, we propose that consumers can develop a sense of personal stewardship that transcends ownership for those objects they view as part of the inalienable wealth of a group or collective. Here, we propose that a community-embedded access-based program may, despite its underlying market mechanism, be viewed as a form of inalienable wealth within a community whose values closely align with that of the program.

Commons-Based Peer Production. Another theoretical perspective that may help shed light on the emergence of prosocial collective practices is commons-based peer production. As a form of social production, commons-based peer production is decentralized, in that "authority to act resides with individual agents faced with opportunities for action" rather than with a manager or organizer. Further, these individual actions are motivated and coordinated by "social cues and motivations, rather than prices or commands" (Benkler and Nissenbaum 2006, 396). We propose that physical commons-based peer production, such as maintenance in an access-based platform, resembles the online maintenance observed in peer-produced commons. One example of commons-based peer production is the creation and maintenance of the online encyclopedia Wikipedia, through the efforts of a large-scale volunteer collaboration. Bauwens and Pantazis (2018) suggest the larger ecosystem of commons-based peer production can be broken down into

three institutions: the productive community contributing to 'synergetic cooperation' (Bauwens 2005); the commons-oriented entrepreneurial coalition(s); and the for-benefit association that supports the infrastructure to allow peer production. Crucially, while the for benefit association maintains the infrastructure needed for collaboration, it does not direct or command the production itself.

Benkler and Nissenbaum (2006) suggest that there are three structural attributes necessary for successful commons-based peer production. First, the overall project must be divisible into modules, or small pieces individuals can independently engage with. This allows a large-scale production to occur incrementally, through a series of discrete and asynchronous actions. In the context of repair in an access-based bike sharing platform, a module is the repair of one bike, or the action of returning a bike to a station. Second, Benkler and Nissenbaum (2006, 401) suggest the size, or granularity, of these modules should be relatively small, in order to "capture contributions from large numbers of contributors whose motivation level will not sustain anything more than quite small efforts toward production." Finally, they suggest that the project itself must have a relatively low-cost integration, the "mechanism by which the modules are integrated into a whole end product" (401).

While commons-based peer production was "born digital," through projects like Open Street Map or the creation of software like Linux or Apache, there are also numerous projects (e.g., fabbing) which "aim to produce tangible goods through a peer-production approach (Troxler 2010, 2). In this research, we suggest that commons-based peer production can move into the physical realm not just through the production of physical goods as in Troxler (2010), but also through the maintenance of physical goods in a community commons. In this research, we investigate these emergent prosocial collective practices as they are carried out by consumers

who both use and maintain an access-based platform, in order to understand how these valuable repair practices are motivated and enacted in the absence of centralized control.

Method and Context

We investigate emergent distributed maintenance of access-based platforms and the user-maintainers who engage in it in the context of a bicycle sharing program. By examining the prosocial collective practices of these user-maintainers, we aim to understand how this form of repair emerges at a community level, what motivates it, and how these practices are maintained. Further, we hope to understand and demonstrate how these repair practices integrate with and impact the user's larger practice world and the dedicated maintenance regime of the system.

Context and Research Setting: Bike Sharing Program

The PeaceHealth Rides Bicycle Sharing Program was launched in Eugene on April 19th, 2018, with 300 bicycles at 35 stations located on and around the University of Oregon campus, including downtown Eugene and the Whiteaker neighborhood (PeaceHealth 2018). Eugene is a college town with around 170,000 residents, which prides itself on being a bike friendly community. Initial estimates predicted that each bicycle in the system would make less than one trip a day on average, but in spring 2018 when the program launched, each bicycle in the shared system was making an average of three trips a day (Toole Design Group, Lane Transit District, & City of Eugene 2014; Glucklich 2018), with 3,700 users in the first month alone. Users of the PeaceHealth Rides program can rent a bike on one of two plans, a single-ride plan in which riders pay $1 per 15-minute rental, with 10 cents a minute charge after that, or a $15 monthly fee

for an hour of ride time a day. Students (and faculty or staff) of the University of Oregon receive a discounted rate of $5 a month for an hour of ride time a day, or 15 minutes of free ride time per day, with a 10-cent charge per minute after that (PeaceHealth Rides 2022). PeaceHealth Rides employs several fees to discourage misuse of the bicycles, from a $1 fee for parking a bike out-of-station (increased to $2 in September 2021), and a $25 fee for leaving a bike out of the system area, all the way to a $1,600 fee for stealing or losing the bike altogether (PeaceHealth Rides 2022). Presently, the PeaceHealth Rides system has 40 stations and 310 bicycles in operation.

While the City of Eugene purchased and owns all of the material equipment, namely the bikes and modular station units, PeaceHealth Rides has been through five different operators during its existence to date. According to our interview with a system operator, when the system first launched, it was operated by Social Bicycles, the same company the city purchased the bikes from. Around six months later, another bike sharing company, Jump, acquired Social Bicycles. Then, six months after that, the technology company Uber acquired Jump. Then, in spring 2020, Uber sold their bike share operations to the micromobility company Lime, who took over all of the formerly Jump bike share programs, with the exception of PeaceHealth Rides and a few other bike share programs. These exceptions operated on a sponsorship program, where they were partially funded and branded with a sponsor, for example the health care system PeaceHealth in Eugene. The majority of bike share programs are instead branded for the company (e.g., Jump, even after being acquired by Uber), and funded by user fees and venture capital investors. Since Lime didn't want to take over the sponsorship programs, the City of Eugene was forced to take over operations of PeaceHealth Rides on June 1st, 2020. On April 1st, 2021, the City of Eugene signed a contract with a new operator, Cascadia Mobility, who is hoping to apply the PeaceHealth Rides bike share model to new bike share programs they will

operate in other Oregon towns. From a user perspective, most of these shifts have been fairly seamless, aside from a slight decrease in bikes during the transition between Uber and the City of Eugene due to staffing issues and the ongoing COVID-19 pandemic, especially because the sponsor, PeaceHealth, has remained consistent throughout the program's operations.

From a maintenance and repair perspective, there are two levels of repair required in order to keep this access-based platform functioning: repair of the material objects themselves, and repair of the system via redistribution. PeaceHealth Rides of course requires maintenance of the material objects, the bicycles and stations/hubs, which is usually carried out by a team of dedicated field technicians (currently two full-time and two-part time). Maintenance in this context consists of weekly cleaning and inspections for any repair issues, along with scheduled maintenance based on the number of miles traveled. For 'soft' broken bikes, especially when the bike isn't receiving a signal, the technicians can usually repair them in the field, but for more difficult or intense maintenance, they retrieve the bikes and bring them back to a designated workshop to repair. Users can also report issues with a bike by pressing a labeled "repair" button on the bike's keypad, which prompts field technicians to come assess its repair needs.

However, since the bicycles move throughout the system and can be parked outside of a hub (albeit for a small fee), system repair in this context also involves the redistribution of these material objects throughout the system – both returning bikes left out-of-hubs to hubs, but also moving bikes from less popular destination stations to more popular origin stations, since the flow within the system is not self-rebalancing. The dedicated maintenance team also engages in rebalancing of the bikes, using a van or a bicycle with a trailer that allows them to move multiple bikes at once to more in-demand areas of the system. However, this repair and rebalancing, as observed in other access-based platforms (City of Redmond 2016; Economic & Planning

Systems Inc. 2013) makes up the biggest expense for the PeaceHealth Rides program, so the platform also attempts to encourage practices of distributed maintenance by users. Toward that end, PeaceHealth offers a $1 credit to a user's account for every bike they return. This could take the form of returning out-of-station bikes to stations or taking a bike from a regular station to what PeaceHealth Rides deems a 'priority' station, a heavily used station where more bikes are taken out than are returned. We examine the user-maintainers in this platform, termed "bicycle bounty hunters" who engage in this distributed maintenance by spotting, retrieving, and redistributing bikes.

Depth Interviews

In-depth interviews were conducted with eight user-maintainers and one system administrator in the PeaceHealth system. Informants were recruited using existing connections with the PeaceHealth Rides system from past research, and snowball sampling was used from there to contact user-maintainers who were known to system administrators, from personal contacts, and referrals from prior study participants. See Table 4.1 for a description of user-maintainer study participants. The interviews utilized an open-ended questionnaire format (McCracken 1988), to learn more about the repair in the system and the practices of user-maintainers and their motivations from a user or platform perspective.

Interviews conducted prior to the pandemic were collected and audio recorded in a face-to-face format on the university campus or an alternate convenient location for the informant, such as their place of work. Interviews conducted during the pandemic were conducted and audio recorded using the video calling platform Zoom. User-maintainer informants received a $20 Amazon gift card as a thank you for their time. Interviews lasted between 25 and 66

minutes. User-maintainer informants were asked to reflect on their practices of stewardship through distributed repair, including their motivation and strategies, as well as their relationship with the community, the platform, the practice of bicycling, and other system users, user-maintainers, and administrators. The system administrator informant was asked to reflect on the role of user-maintainers within the system, as well as the efforts by the system to encourage consumer platform use and repair practices. Deviations from this script as appropriate allowed us to explore the full range of these practices, without imposing a priori questions or assumptions and allowing informants to describe their experiences in detail. The audio recorded interviews, when later transcribed for analysis, comprised 249 pages of text.

Table 4.1. Informant Demographics

Name	*Age*	*Gender*	*Number of Bikes Returned (approximate)*	*Amount of Credit*	*Other user-maintainer connections*
Scott	50	M	415	$250	None
Steve	58	M	1600	$1400 (after donating $700)	Friends (and competes with) Mike and Jeff
Jason	38	M	200-300	$120	Acquainted with Jeff who is a friend of his wife
Jeff	60	M	160	$60	Friends (and competes with) Mike and Jeff, acquainted with Jason through his wife
Joshua	25	M	10	$2	Coworker of Anthony
Kathy		F	90	$81	None
Anthony	41	M	50	$45.60	Coworker of Joshua
Michael	50	M	300-500	$137.70	None

Participant Observation

Additionally, we engaged in a prolonged participant observation (Jorgensen 1989; Thomas, Price, and Schau 2013). Over 3 years, the authors were embedded in a multi-disciplinary technical advisory committee as a part of two research grants in collaboration with community transportation officials, including system administrators for the PeaceHealth Rides programs, which allowed us to gain insight into the workings of the program and its integration with the larger community. This role also facilitated interaction with other community transportation officials and PeaceHealth Rides stakeholders, including Lane Transit District, the local public transportation agency, and the University of Oregon's Transportation Services department who partnered with PeaceHealth Rides to establish the program in 2018. Additionally, we assisted the program with yearly surveys of their membership, throughout operator and system administrator changes, which helped us gain access to the data used in this research. Finally, the first author also conducted daily observational fieldwork of system use over 4 years, taking photos and making observations of system repair needs and behaviors observed, as well as participating in user-maintenance in Spring 2022 as part of their usage of the PeaceHealth Rides system.

Geospatial Data

Geospatial usage data was also utilized to visualize and examine the flow of bikes within the platform. Data consisted of 546,104 observations of individual trips taken on PeaceHealth Rides bicycles from the system's launch on April 19th, 2018 through March 29th, 2022, and was generously provided by the City of Eugene and PeaceHealth Rides. Each data point included an anonymized user ID, bike ID, the start and end hub, time, and latitude and longitude coordinates

for the trip, the distance in miles, duration in seconds, and means of accessing the bike (e.g., Keypad, RFID card, etc.). This data was used to analyze the spatial and temporal relationships between consumer use and maintenance practices in the platform. Additionally, this data was used to create interactive visualizations in R, using the ShinyDashboard package and hosted on ShinyApps.io, a link to which is available in the Appendix. We draw on themes that emerge through coding and analyzing of our qualitative data to interpret statistical patterns present in the geospatial data.

Results

The materiality of the bike sharing program itself directly influenced the establishment of the incentive program for returning bikes. Modern bike share programs generally take one of three forms (1) docked, meaning that bikes can only be checked out from and parked at a designated bike hub/station, (2) dockless, meaning bikes can be parked anywhere they can be locked, without designated hubs/stations, or (3) hybrid, where the system has stations, but users can also park bikes outside of a hub/station anywhere in the system area, usually for a small fee. This bike share program operates under a hybrid model, which, as the system administrator, Sam, describes, resulted in the addition of the bicycle bounty hunting system based on the model of a couple other programs, "when we decided to not go with the station based but with the hybrid model, we knew that we were going to have bikes that were not in the hubs, and that we needed to have some way to sort of collect those. And, you know, just to rebalance the system, and Social Bicycles, you know, was already doing some of this in other cities."

“Bike Bounty Hunters”

User-maintainers who engage in pro-social repair practices are often colloquially referred to as “bike bounty hunters,” a term the program itself encourages, as Scott explains, “It was on their promotional video. I don't know if it was PeaceHealth Rides or Social Bikes, but they had it on there talking about, "Be a bounty hunter." I never thought about it like that, or that I would ever do it, but then it's a game. It's good for exercise and it can be a lot of fun.” While not all of our informants were familiar with this term to describe their maintenance practices, some fully embraced it, like Anthony, “I think it's kind of fun, it's a little bit edgy, like bounty hunter, I mean, it's ... I was talking with my staff before you came here about Dog the Bounty Hunter. They were like, "You're such a bad ass. You're bounty hunting bikes." But it's good. I mean, I feel like putting a name to it and creating an identity for it makes sense.” At the same time, it’s a term that doesn’t completely capture what these users do for the system, and the value they bring through their engagement in this prosocial practice. Joshua struggles with the term. On one hand, “… it does seem like a bounty and that's a cool name for it because for me, it's like, I guess, an honor or a badge of honor.” But he’s also hesitant to share the term beyond other bounty hunters and ‘those in the know’, because of the negative cultural associations with bounty hunting, “I guess in this context, it makes sense. But I guess if people are not associated with PeaceHealth they’d be like, "Oh, you are a bike bounty hunter?" Like people think I'm a thief or something. I’m not stealing a bike, I have some.”

Bounty hunting implies a negative connotation that does not reflect the prosocial behaviors these users engage in. As Benkler and Nissenbaum (2006) assert, commons-based peer production encourages and offers opportunities to engage in virtuous behaviors which are not in

line with the traditional perception of a bounty hunter. To counteract this, Jason came up with his own term, “wrangler,” to better convey his feelings of performing a service for the community.

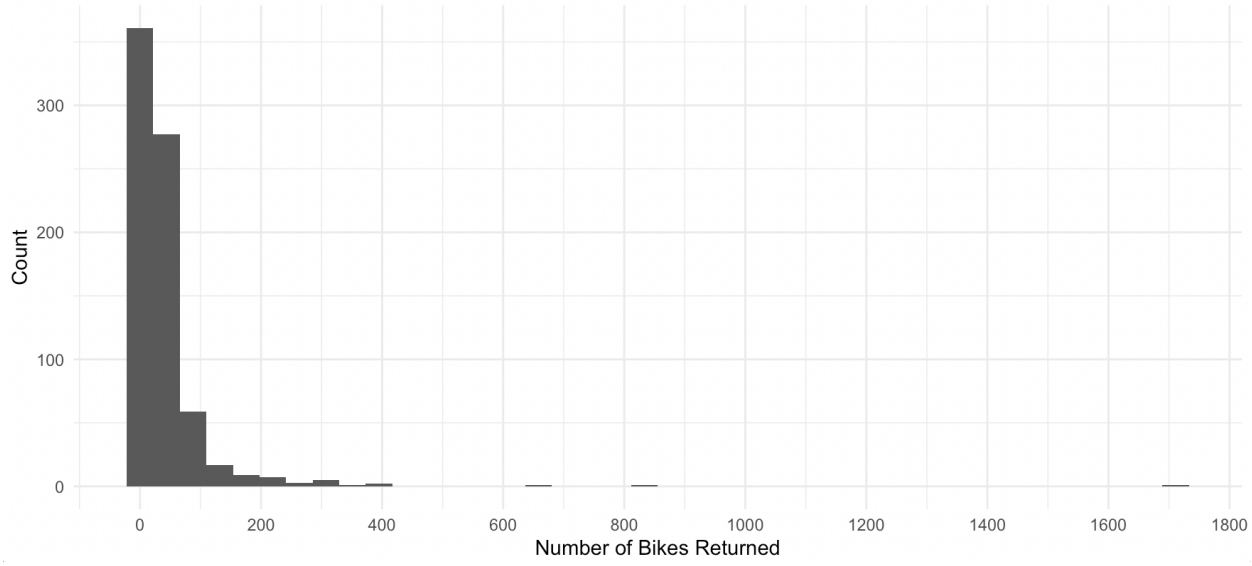
> I personally prefer the term wrangler… I don't know. I mean, bounty hunter, I don't know, it seems to imply some kind of, I don't know, I think of a like a shady character sitting in a shadowy, dark bar with some guns or something. He's like ready to go out and do whatever it takes to get whatever. And wrangler to me is, I don't know, I guess to go back to the, it all feels very wild west to me. And wrangler is more like, "All right, I'm just going to go out and get the job done and I'm not out to try and hurt anybody. I'm just trying to get the bikes back.”

Prevalence

System administrators were unsure exactly how many self-proclaimed bounty hunters operate within the system. Using the geospatial data, we see the distribution for system repair practice engagement, as measured by number of bikes returned by user is strongly right skewed, as shown in Figure 4.1. The maximum number of bikes returned by one user is 1,722, and while 801 users have returned 10 or more bikes, only 20 have returned 200 or more bikes. While this may not seem like a large proportion compared to the 30,348 users who have ridden with the program since its launch, Sam reported that Eugene has embraced bounty hunting to a degree he hasn’t seen or heard about in other bike sharing programs. “The bounty hunter aspect was something that was happening in other communities, but I think Eugene was really their stellar system for the bounty hunters… I don't think any other city was getting the kind of numbers that we were, as far as the self-rebalancing, through bounty hunters.” Indeed, the usage data reveals that since the program’s initiation, nearly a quarter of all the trips (124,804) were ‘destructive’ to the system, in that they originated from a station, but ended without returning to a station. Only 16% of all trips (79,109) were ‘restorative’ and returned out-of-station bikes to a station. And 42% of those restorative trips (33,159) were completed by committed user-maintainers, users

who have returned at least 10 bicycles since the program began ($M_{number\ returned}$ = 41.40, *SD* = 84.36). A further 14.5% of restorative trips (11,533) were conducted by casual user-maintainers, who have returned less than 10 bikes since the program's inception (*M* = 2.29, *SD* = 1.94). Clearly, user-maintainers, particularly committed user-maintainers, have an important impact on repairing the destructive behaviors of other users and thus the system as a whole. To better understand their motivations and strategies that drive the emergence of these prosocial collective practices, we discuss emergent themes from our interviews with these committed user-maintainers.

Figure 4.1: Distribution of Bikes Returned by User Maintainers



Motivations

From a system perspective, operators anticipated these bounty hunters would be motivated by one thing, money. To encourage repair of the system, the platform rewards users with a $1 credit when they either (1) return a bike that was left parked not at a station to a station,

or (2) take a bike from an ordinary hub to a priority hub (designated as such because more users want to access bikes from that station). The system views this as an economic incentive, as Sam, a system administrator described, “People in general are like, 'Oh, I wanna make $1 rather than pay $1. And so I'll return this [bike] there.’” While operators view this as ‘making a dollar’, the dollar is actually awarded in the form of a $1 credit to a user’s bike share account. This credit can only be used within the bicycle sharing system and can’t be cashed out or transferred. As it turns out, the relationship these user-maintainers have with this restricted use credit is much more multifaceted than the platform managers anticipated.

The greatest alignment with monetary incentives for user-maintainers comes in the form of eliminating the economic cost of using the system, since their amassed credits cover their membership fees. Scott started bike bounty hunting with an hourly membership, “Well, I'll do the hourly thing," and then I could ride a couple times. I found bikes out of station, and then I would return them to the station, but I would have gotten charged $1 for being an hourly and then $1 return. So, it was nothing. Right?”. Because of the ease with which he could locate and return bikes, he was able to up his membership to a monthly level, “15 bikes a month? I can return 15 bikes a month, and then have free access to the system.” However, Scott’s motivations for bounty hunting quickly shifted beyond free access to the system. He integrated his practice of bounty hunting with his work routine at a desk job as a form of exercise,

> So, it started off that way. Then, I worked over by the river. So, I started doing, on my lunches, "How many bikes can I return in an hour for lunch?" So, it would be like exercise for me. I would find one on the map closest to my office. I would run to that one, which was sometimes two, three miles away, because there are not a lot down there.

Then it transitioned into a personal challenge, where Scott viewed his credits not as real money, but as more of a scoreboard:

> Then it would just be, “How many bikes can I do?” … So, that's kind of how I got started, then it just ballooned from there. Then you see your dollar amount go up and you're like, "How high can I get it?" You know? Like if I'm at $216; it's like, "Well, let's get to $230." You know? “I've got to deliver 14 bikes.”

Scott takes every opportunity to increase his personal score by integrating this practice of maintenance with his other daily practices. Even when he came to campus for our interview, he was planning to bounty hunt on his way back to work, “Yeah, that's what my balance is right now… it’ll be a little higher when I get back to the office.”

None of our informants were motivated by the accumulation of credit as real money, as the system administrators designed. As Jeff put it, “It’s not real money. I can’t take it with me.” In fact, to the contrary, Kathy was quite worried PeaceHealth would view her accumulation of credit negatively, “They've never really said anything about it [being a bounty hunter]. Sometimes I wonder, it's like when I'm just letting it build up like that and not using it, sometimes I wonder are they thinking I'm just trying to ... keep earning money? Or whatever. Not that I can check it out of there…” Indeed, none of our theoretical models support monetary incentivization as a means of increasing or encouraging prosocial behaviors. Stewardship emphasizes an other-facing, cooperative perspective, which is hindered by the provision of financial incentives (Aquino et al. 2009; Hernandez 2012). Commons-based peer production also can “not be explained by a relatively mechanistic reliance on economic incentives” as “by definition, peer-production enterprises are non-price based, that is, they are devoid of marginal payments to contributors for contributions” (Benkler and Nissenbaum 2006, 402). Here, we observe a systematic attempt to take a more agentic approach to motivate emergent behaviors that are much more in line with commons-based stewardship or peer-production behaviors. Thus, outside of facilitating engagement in this practice by covering the monetary cost of the user-

maintainer's monthly membership fees, it is unsurprising that our informants do not view these incentives as monetary rewards and are sometimes even a little embarrassed by them.

For our informants, these credits served mostly as a personal scoreboard of the number of bikes they've returned, akin to Wikipedia's recognition of contributors through Service Awards (Wikipedia 2022). As Jason describes, "the primary function of the credit that I accumulate is, it's just like my score. Like a video game or something." These scores can serve as personal motivation to continue engagement in repair practices. Anthony was motivated by a desire to reach a certain amount of credit on his account, "I mean, my initial thing was get to $100. I got to that. Then I thought, well maybe I'll go for 200. I got to that. Then I was just like, "What am I doing?" Then I had to figure out, what am I going to do with all these credits?" Of course, because it isn't real money, and can't be withdrawn, user-maintainers are also freer with sharing their credits with others. Steve, Mike and Jeff all donated credit to allow freshman in a University of Oregon class to try out the bikes, because, as Steve said, "What else can I do with them? When you have 1500 credits, that's 100 months of bike share." Likewise, Michael and Scott started paying for other people to ride with them as a way to use some of their credit, as Michael describes.

> I started throwing in all kinds of share ride bike stuff. This is me taking my, the entire marketing department on a ride together through campus [referring to Instagram photo]. I paid for all those bikes. I said, "I'll just take you all." That's what I was doing for a while, but everyone's like, "Michael, why are you doing this? It's weird." I take team meetings. If I have a meeting with somebody, I say, "Hey, we'll meet and we'll get bikes, and we'll ride somewhere together." That's what I started doing with it.

On the other hand, since it serves as a makeshift badge or indicator of how many bikes they've returned, user-maintainers aren't completely free with using their credit – they use it to pay for their membership and use of the system (e.g., extra minutes of ride time), but aren't willing to use it to cover system penalties. Indeed, user-maintainers are hesitant to engage in

disrepair of the system, partially because they work hard to maintain it, but also because they don't like seeing their score decrease. As Jason explained, "I feel a little bit guilty about it [leaving a bike out of a hub], as in like, oh man, I'm taking away my credit. But I also look at it like, I've got all this credit, right? I can afford to have $1 out of my account for the convenience and time savings of having to find a station and then walk to wherever." Similarly, Jeff describes his usage, "I mean, there are times where probably, my time is more important, and I could afford just to pay the buck. And, I wouldn't have to pay it because it gets such a huge credit. But it just sort of seems wrong to have to pay when I could take it to hub." While it isn't money they can use for anything else, because it indicates the accomplishments of their practice, they're loath to part with it, even when it would make using the system easier or more convenient for themselves.

Stewardship of an Inalienable Wealth

The ownership structure of this access-based platform also makes the emergence of collective stewardship behaviors surprising. For the majority of the period in which we observed and engaged with the platform and its users, it was operated by Uber, a multi-billion-dollar American mobility service provider. This is not unusual, as many access-based platforms are owned by large corporations: for example, Avis's recent acquisition of the car sharing platform ZipCar. However, large corporations typically do not engender care on the part of consumers (Buhalis, Andreu, and Gnoth 2020), and thus it is surprising to observe consumer stewardship of such platforms. Nonetheless, our user-maintainers do feel a strong sense of stewardship over the platform, which results in their collective engagement in a variety of other-facing behaviors that function to both protect and serve users, system administrators, and the materiality of the

platform itself. We submit that the emergence of these collective stewardship behaviors lies in the branding of such platforms, despite their underlying market mechanisms, as an inalienable community resource. Even when the platform was managed by Uber, the Eugene community always viewed it as an important public good, and so repairing the system is seen as a prosocial, pro-community, and pro-bike behavior the user-maintainers valorize.

Like other forms of inalienable wealth (e.g., family heirlooms, national treasures, tribal lands (Curasi et al. 2004)), the access-based bike sharing platform is viewed as being held by a group, in this case, the Eugene community. While for many access-based platforms community ownership might be more perception than reality, the access-based program in Eugene is unusual in that the City of Eugene purchased and retains rights over the material assets of the bike sharing program (e.g., bicycles and stations), and Uber and subsequent companies served only as system operators. Indeed, this unusual community-based ownership allowed the city to step in and save the program by operating it temporarily when threatened with its loss due to the departure of the previous provider. Thus, the Eugene community, through the city governance, was able to save this valuable community resource. Loss of inalienable wealth is deeply feared at a group level, partly because it is so closely tied to group identity (Curasi et al. 2004). This bike sharing system aligns well with Eugene's identity, as a bike-friendly community which embraces alternative forms of transportation. When faced with its loss, the community leaders asserted their commitment to continuing the program. The mayor, Lucy Vinis reassured the community, saying "We know our community values bike share. Our staff will continue to work… to continue this popular transportation option, one that gives us an active, environmentally friendly transportation option to move through town" (Marshall and Richardson 2020). Mary Kingston,

speaking for the community sponsor, PeaceHealth, described the program as “an integral part of Eugene’s transportation infrastructure and culture” (Marshall and Richardson 2020).

Inalienable wealth is also divorced from its origins. While this five-year-old access-based platform is certainly not as temporally or spatially separated as religious relics, clan totems, or even family heirlooms (Godelier 1999; Curasi et al. 2004), we argue here that the platform was separated from its origins and corporate operations. The community-facing orientation, local sponsor, and program marketing somewhat masked the role Uber had to play in the platform. Indeed, for the first six months the platform operations were owned by Uber, its eponymous car ride-sharing platform was banned from Eugene due to conflicts over safety agreements (Sebens 2015). While Uber doesn’t reflect Eugene’s identity, the bike sharing program does, and viewing it as an inalienable resource implies the psychological distance between operator and platform we observed. Indeed, our user-maintainers viewed the platform not as a business, but as a community resource. Steve, who went so far as to give up space outside his business to have a station installed explained that he thinks that “it's just a good community asset.” Jeff was skeptical before the program’s introduction, nervous that there “wouldn’t be enough support in the community to subsidize it” but describes how “now I think it's essential to our community.” Finally, inalienable community wealth cannot be individually owned, merely possessed. While ultimate rights belong to the group as a whole, community members “merely enjoy use rights in inalienable wealth” (Curasi et al. 2004, 610), a model closely aligned with the structure of an access-based platform.

We assert that the perception of this access-based platform as an inalienable wealth of the community results in the user-maintainer stewardship behaviors we observe. As in Hernandez (2012), we observe psychological ownership as a motivating force behind consumer stewardship

practices, resulting from the perception of this platform as an inalienable community resource. Here, consumer psychological ownership is not of the platform itself, but instead a broader ownership of the mission and ideas that make up the community identity the program supports and aligns itself with. Scott believes in biking, which this platform encourages, “I like people to ride bikes as much as they can, and to make it fun.” Anthony supports the bike sharing program because he is on board for “anything that is possible to do to support the community… in terms of transportation alternatives.” Steve, who describes himself as “pretty plugged into the city” believes the platform “goes along with the community values… goals for reducing carbon and doing those types of things.”

Our user-maintainers serve as caretakers of this inalienable wealth through their stewardship of the bike share platform. Benkler and Nissenbaum (2006) describe volunteerism as “an essential feature of commons-based peer production.” Rather than being appointed or socialized, our informants self-select into this role, volunteering to serve as a guardian of the community’s inalienable wealth. In this role, they “preserve and share the objects and the knowledge that goes with them” (Curasi et al. 2004; Godelier 1999). Jason describes his guardianship of the program, both protecting the bikes and advertising the system as a self-elected ambassador,

> I think bike bounty hunting contributes to just maintain an order with the PeaceHealth bikes. I think people don't really want to see bikes scattered around everywhere because, one, it's a nuisance. But two, that bikes could also be damaged that way. So, I think by being a bounty hunter, you're kind of helping with more eyes and hands and feet on the ground, really helping with that. But also just being an ambassador and saying, "Hey, folks, come use PeaceHealth. They're really easy. They're fun. It's cheap, especially for U of O students and staff," so yeah. So, being an ambassador but also just doing good and helping maintain order.

Michael takes his volunteer role as an ambassador to heart, going out of his way to prepare ahead of his bounty hunting expeditions so he can explain the program and share materials he procures in anticipation of meeting first time users or curious community members.

> As a bounty hunter… I would also help people who couldn't figure out how to hold bikes, or what to do, or how they work. You spend a lot of time educating. People see you bringing and going all the time. They'll ask a question. Then I used to carry flyers with me too, and I would give them a flyer. "Oh, I've got, this all about it." "This is what it costs." Just tried to advocate that way. Sarah gave me some [fliers] one time. They have some at the EMU. There's a rack with that, so I would grab a few of those. You try to explain it all to them, but you're like, I'm in the middle of bounty hunting.

Michael also views himself as an advocate, hoping that through his stewardship practices, he can increase usage of the system and recruiting non-bikers in Eugene to try PeaceHealth Rides, something strongly in line with his personal beliefs about sustainable transportation,

> I like to make sure they go back to hubs. Then I'll walk that block or whatever. I think it has, customer service. I like the thought that if people go up to hubs, there's bikes there for them, people that don't want to bounty hunt. [Bounty hunters] make sure you're helping the system get bikes to hubs… so it provides a good service. This would be for the community. It's a service for people who live in Eugene to be able to get bikes. I'd like more people to participate in being able to ride bikes. I think that would be great if people found alternative modes of transportation as a viable option, versus always getting in their car.

Guardians serve to both support the group's identity currently and to preserve it for future members, sustaining the group's collective identity (Bradford 2009). Kathy views her contributions as crucial to the platform's continuation,

> I'm helping make their plan work. Because it's a good plan to give credit when people do it, and take more money when people don't, but if nobody's out there willing to go do it, then it's not working out. So, it feels good to be a part of it. I'm a community-minded person.

Stewardship occurs collectively, in that the efforts of individual stewards working independently, supports and protects this inalienable community resource they feel ownership over. However, unlike the mutual social exchange Hernandez (2012) describes as building

affective commitment and driving stewardship behaviors, we observe individual behaviors more akin to Benkler and Nissenbaum's (2006) description of commons-based peer production. Namely, these individual acts of prosocial repair occur incrementally and asynchronously, without the expectations of indirect or intergenerational reciprocity Hernandez describes as fostering stewardship (2012). These collective behaviors also occur without the control systems traditionally present in stewardship, which foster and promote opportunities for these prosocial behaviors. Instead, our user-maintainers engage in repair practices facilitated by an organization, but one without the ability to require or prohibit their actions (Benkler and Nissenbaum 2006). Thus, individual stewards collectively engage in commons-based peer production which allows their separate work to be brought together by the platform to protect and conserve what they view as an inalienable community resource.

User-Maintainer Dilemmas

The nature of this together-but-separate work by individuals toward a collective end is not without complexity. Many factors, including the market-orientation underlying what is viewed as a community resource, and the multiple stakeholders implicit within this system raise numerous conundrums and contradictions user-maintainers must carefully navigate as they engage in prosocial practices of repair within the system. In the following section, we outline three such dilemmas we uncovered in our investigation, namely (1) the invisibility of repair, (2) heterogeneous standards, and (3) the user-system repair paradox.

Invisibility of Repair. These positive prosocial repair practices operate largely invisibly within the system. For the most part, the system is not aware of individual user-maintainers, only

the impact of the overall commons-based peer production which operates within the system. Adding to the invisibility of this practice, its performance looks no different from a consumer picking up a PeaceHealth Rides bike to merely use, as Scott explains, “I've jogged up to a bike and had someone start to put their code in… But I don't know that they're a bounty hunter or just someone just getting it.” Joshua also emphasizes this, “I think that people could be getting a bike for various different reasons, whether it's at the hub or not. So, I think I probably have [seen other bounty hunters], I just don't know. And I haven't seen anyone with a big bounty hunter, bike bounty hunter shirt on or anything like that.” The user-conducted maintenance is largely invisible in this context, both to the system and to other users, because the user-maintainer looks just like any other user. Even for bounty hunters like Scott, who have racked up hundreds of dollars in credit, being acknowledged by someone who is a part of the dedicated maintenance regime is a notable occurrence,

> I ran into, for the first time ever, one of the staff members who was in the van bringing bikes to the station. I had already brought one bike back there, but she wasn't there. When I rode up on the second bike, she's like, "Hey, thanks for bounty hunting." I'm like, "How does she know I'm not just returning this bike here?" I don't know. She definitely said, "Thank you for bounty hunting." So, I don't know if she can see on her little tablet or something, the account and kind of account history, or whatever… So, that was kind of funny. That was just like last week, I think. That was the first time I ever had anybody even acknowledge that I was doing it.

This invisibility raises an interesting contrast to past work on distributed maintenance, however. Whilst dedicated maintenance is by nature conducted separately, making it invisible to the average user, distributed maintenance invites everyone “to adopt both a modest and empowered position, based on daily participation in the care of people and things” (Denis and Pontille 2017, 3). Thus, the workers in a distributed maintenance regime are “not only visible to everyone but are part of a crowd of people potentially participating in maintenance” (Denis and Pontille 2017, 4). In this context, however, even the distributed maintainers themselves are not

aware of each other, as Michael describes, “I don't even know how many of us there are. Is there four? Is there 300? I don't know.” Similarly, Kathy describes herself as “Just me. Yep. I’m the lone bounty hunter.” Instead of the highly visible community-centered distributed maintenance observed in de Laet and Mol (2000), in this context, distributed maintainers are a small, self-selected group who operate invisibly and largely independently within the system on a daily basis. This is even true for user-maintainers who make a point of talking about their practice with others, like Anthony, “I've tried to recruit people. And I tell everyone, especially in the initial stages, I told everyone about the program and tried to encourage them to do this. My staff… at the end of the year, they gave me a little award that said, “Mostly Likely to Rack up the Most PeaceHealth bike credits.” It’s hanging in my office.” However, despite his best efforts, he reports that “I've really hardly met anyone who would consider themself a bike bounty hunter. There must be some people out there. I must not be the only one. But we're few and far between, I think.”

User-maintainers also struggle between their desires for community and independence. Many bounty hunters are community-minded in other ways, serving on committees and advocating for active transportation and bicycling in the community. Most experienced a lack of community between user-maintainers, as Jeff described, “there's really no social mechanism to hook bounty hunters together if you don't already know them.” Many also expressed interest in a community mechanism to connect them with other user-maintainers. Jason almost started a Facebook page to connect with others before losing motivation, but would still like to see some way to connect with other user-maintainers:

> I kind of think it would be cool, if that was more of a thing that PeaceHealth Rides’ system promoted… it’d be kind of a community thing [having a scoreboard]. I bet there might be a way to communicate with other bounty hunters. You just got to turn it into kind of a geeky sport kind of thing. I mean, I think it would also make their job of

> redistribution within the system a lot easier because it would encourage people to do that for them…

Informants who do know each other report their competition drives them to new heights in their quest to best each other, at least until an unmatchable record was set, as Jeff described,

> … a little bit of kind of, not peer pressure, but sort of rivalry with friends. And we spur each other on... It's like, well, "I can do that too." … I got 20 [bikes] in one day. And, at the time I think that was the record locally, and I shared it with Steve and Mike. And, I had done 12 sometime before that and I did sort of a calculation, I said, I think the theoretical limit is, you know, it's going to be like two or three minutes per bicycle. The algorithm or the billing system, they round up. So, if you return a bike in two minutes and five seconds, it bills you for three minutes. So, three minutes seem to be sort of a reasonable amount that you could get a bike unlock it, move it somewhere, lock it up, have it sort of account for that and roundup. So, I did 20, and then like five days later Steve did 36. And it's like, "Okay, game over. I can't compete with that." Good on him.

Although their maintenance is a service to the whole community, their interest in connecting is largely only to their own social group. Jason is interested in a score board, but described that he

> …would be more inclined doing it with people who I know. Kind of that accountability, but also like, "Oh, I'm going to... I know you, I'm going to beat you," as opposed to, "Oh, there's some person named Bob and Mary in Springfield and they're winning." I'm like, "Oh, well, I don't know who Bob and Mary are, so…

A huge piece of this is the difference in motivation and strategy employed by these user-maintainers. Although from the outside it may appear they are all engaging in the same practice, the practice elements and motivations that drive this behavior are markedly different even in the small sample of user-maintainers we have already interviewed, and result in a great heterogeneity of user-maintainer repair practices. As Michael puts it, “Just because we like returning bikes doesn't mean we're necessarily the same types of individuals.” Six months before our interview, he attended a small gathering of user-maintainers sponsored by the program as a way to thank them for their service, but didn’t find he fit well with the others he met at the event because of their differing motivations,

> It was different than I thought. The way I do it is much more for exercise and fun … where they were more, one guy I met was more vigilant about bikes that aren't connected to things [free-locked] ... It really flipped him out to see bikes not locked up properly. Then he would send Sarah [system administrator] emails, returning bikes in that way. He had a different motivation to returning bikes, because "They need to be locked up. They're not locked up." I was like, "Dude, I don't, that's not what I do." Everybody had a little bit different reason why they bounty-hunted.

This small group of collective user-maintainers operate independently, without guidance from the system, and largely invisibly from both a user and administrator perspective. Thus, their individual stewardship behaviors go largely unnoticed by system administrators and other users, and do not foster the sense of 'retrospective obligation' or mutual social exchange anticipated in organizational stewardship (Hernandez 2012 186). Instead, these individual acts of peer-production are asynchronously and independently carried out. The platform provides a means of linking these discrete actions, thus allowing these individual stewardship behaviors to form collective peer-produced maintenance of the overall system.

Thus, we extend stewardship theory to show that the collectivist behaviors of bicycle bounty hunters stem not from "relationship-centered collaboration" but instead occur through "short-term opportunistic behavior" (Hernandez 2012, 172) which blends into the rhythm of stewards' everyday lives. Contrary to the perspective of repair as an effortful, complex, and difficult process (Graham and Thrift 2007), distributed maintenance of the bike sharing system through user-maintainers often occurs through relatively effortless and convenient acts of maintenance carried out during consumers' everyday practices. As Anthony emphasizes, it fits as an occasional engagement with his other practices, "I would say, just as sort of a small part of my life. And something that I enjoy, here and there." Anthony and other informants find ways to incorporate this practice with their other daily practices, such as finding bikes on their way to or from meetings and engagements,

> I don't return a lot of bikes at once usually. It's more like, I try to really plan it out so that it makes sense for what I'm doing at the moment. So, if I'm like, I need to get to this place. I could walk, I could take the bus, or let me just check the app and see if there happens to be a bike around. Because I know there's a hub near there. So, most of my returns are sort of organically placed in my day, depending on where I am, and where I'm going. I just always sort of prioritize if there's a bike that's not in a hub when I do that. It's rarer that I will go out just to return bikes as a fun activity. But I have been known to do that.

Interestingly, the destructive behaviors of other informants enable the distributed repair of user-maintainers, especially among those who engage in it as a convenience. Kathy rides the bus to work, and prefers to ride a PeaceHealth Rides bike to the bus stop, but because there isn't a hub near her building, it's actually a benefit to her and her repair practices when bikes are abandoned nearby, "is there a bike nearby that's not in a hub? And there isn't a hub right near my building. So, it's to my advantage when I do find a bike." Another common complimentary practice is exercise. Steve bounty hunts as a way to make his exercise practice more fun,

> I use it as an exercise regime. So, with the business I'm in, there's some slack time in the middle of the afternoon. So, what I will do is I'll just go out and start looking for bikes. So, I'll walk to a bike ride to the station, walk to bike, ride to station. And that's kind of my mid-afternoon exercise. So, usually what I'll do is, on a good day if it's nice out or whatever, usually it's probably 15 bikes and probably about five miles of walking.

But by and large, distributed maintenance through bounty hunting is a fun enjoyable pastime for user-maintainers, as Jeff describes, "It's mental stimulation and challenge. It's fun. It's relaxation time in a sense. I mean, it's a way if I've got a series of meetings and then say, I'm going to bounty hunt for an hour just to relax a bit."

While most acts of repair occur relatively effortlessly with consumers' everyday practices, a small minority of effortful and complex retrievals are valorized by user-maintainers who heroically recount with personal photos the saving of the bike dumped in a river or the rescue of the bike left hanging from a tree (Figure 4.2). Anthony proudly recounts his acts of

repair where his unique access due to his job which allowed him to retrieve bikes that otherwise would have been inaccessible to the system.

> I've had a few instances where they were in locked bike cages inside courtyards in the residence halls, and luckily, I have access to all the residence halls… people shouldn't be putting those bikes in that location, because they're not accessible… So yeah. I did [retrieve those bikes]. I mean, PeaceHealth couldn't even get that bike out. So, I'm not sure what they'd do in those situations, but I figured, yeah, I had access, I'll go ahead and take it out for them.

Figure 4.2. A Heroic Act of Repair Documented by a Bounty Hunter

Photo credit: Joshua Skov

Thus, our user-maintainer acts of repair resemble Benkler and Nissenbaum's (2006, 403) view on peer-production, in which "people contribute for a variety of reasons, ranging from the pure pleasure of creation to a particular sense of purpose, through to the companionship and social relations that grow around a common enterprise." User-maintainers don't view this repair as an arduous or difficult task they must overcome. Even when faced with more unusual or effortful

repairs, they are proud to have ‘war stories’ to exchange and demonstrate their value for the system. In general, these individual acts of stewardship occur effortlessly and opportunistically as they encounter a bike in need of repair and fit the repair of this materiality conveniently and casually with their other daily practices in a practice they not only see as valuable to the overall system, but also fun.

Heterogeneous Standards of Repair. However, as Denis and Pontille (2017) suggest, there is a spectrum of repair in distributed maintenance practices, it’s not the simple binary repaired or broken characteristic of dedicated maintenance regimes. Some user-maintainers, like Jason, go out of their way to repair the system to the best of their abilities, removing trash, and even trying to figure out what is mechanically wrong with broken bikes to reduce the repair work for the dedicated maintenance regime,

> …I'll find them, and they'll have trash in the basket and that's lame and depending on what it is, if I feel comfortable with actually touching it, I'll usually throw it away. I also like to, if I find a bike that's in need of some kind of repair. I also used to work as a bicycle mechanic actually, so I see these, like a wheel will be really wobbly or the gears won't be working right or something and if I have the time to, which I usually do because I'm just out doing stuff, I'll use the app to communicate that this bicycle has mechanical issues, that I can fix it, but yeah.

Other bounty hunters are satisfied with a lower standard of repair, not viewing care for the material objects themselves as part of their role, only the redistribution of these objects. Jeff’s strategy for trash in the bike baskets, which he reports coming across all the time, is to “just ignore it.” Benkler and Nissenbaum (2006, 401) emphasize that a peer-production “project will be more efficient if it can accommodate variously sized contributions,” because it allows for individuals with heterogenous levels of motivation to still make contributions towards the commons.

User-maintainers also differ in the personal effort and risk they are willing to undertake to repair a bike. On one end, Steve tends to take a more conservative approach, reporting “if it's in a place where I've got to really go in somebody's backyard deal, I would probably let that one go.” On the other hand, some bounty hunters embrace the challenge and valor of retrieving a difficult bike. Michael actively hunts for bikes, making sure to report those he isn’t able to retrieve, “Sometimes I'd have to be creeping in people's backyards. They would put it in their backyards and stuff, yeah. I'd have to sometimes, if it was behind a locked fence, I'd have to send a picture to Lindsay or support to let them know that it was back there, that I couldn't get to it.”

User-maintainers also exhibit heterogeneous standards of repair for the redistribution of bikes. Many bounty hunters return bikes to the closest hub in order to maximize their credit or set new records, as Michael describes, “Whatever [station’s] closest… just start feeding them into that one.” Other bounty hunters, like Anthony, who engage in user-maintenance more as a convenience, base the destination station “on if I'm going somewhere. That would be the number one priority.” Of course, if he isn’t bounty hunting as a convenience between other practices, his return goals resemble Michael’s, “just the closest location to there, if I'm not going anywhere. Because I want to minimize the amount of time I'm on the bike, so that I can maximize my profit.” Interestingly, although Anthony uses the term “profit” here and refers to bounty hunting as “It’s free money for them [PeaceHealth Rides]. It's free money for me”, he also acknowledges that he “never expected to be able to use that [money] for anything other than bike sharing.” He also views his bounty hunting credit in contrast to credit he earns from other programs like the Oregon can and bottle deposit program which can be withdrawn and spent on groceries. As Anthony puts it, “Now, that's real money.”

Scott's bounty hunting practice, in contrast to that of Anthony and Michael, prioritizes not just picking up the bikes, but also returning them in a way that is useful for the system, "I didn't want to just return bikes to where there's a ton of other bikes. I'm like, "Well, I'll return it to priority hubs or empty hubs or low hubs." Toward that end, even though, as he describes, "I don't like to run," he is willing to run as part of his bounty hunting practice, as a way to both get exercise and to get a bike to a position in the system where it is needed and will be used,

> It's all about… feeling like I am doing something for the system as well because, I don't mind running. If I'm going to do a bounty hunt and move bikes to maybe way out on 17th and Hilyard because it's empty, and then students aren't around, sometimes you have to go pretty far to find another bike. If I can move bikes to where I feel like they need to be, that's one less bike that PeaceHealth Rides has to up throw onto their truck or onto their little bike carrier and move. I can tell you, sometimes I've gone and delivered a bike to a priority hub, ran, got another bike, went back over to that priority hub and the bike that I delivered is already gone.

Scott views himself as a substitute for the dedicated maintenance regime and takes particular pride in seeing the impact of his repair on the practices he facilitates by making bikes available. Indeed, regardless of the differences in effort made in their repair practices, user-maintainers generally view their own behavior as a service to the system. Jeff was the only informant who reflected that his repair behaviors, in thinking about the whole system, are not necessarily providing the best repair possible,

> It doesn't cost [PeaceHealth Rides] anything, you know. And so, the direct value is the rebalancing, or the getting bikes back to hubs. Which is a little bit different for me about rebalancing. You have the sort of situation where you've got all the bikes on campus and none downtown. And I'm really not taking a large quantity of bikes from where they are to where they're not, because I don't have that time.

Thus, our observations are somewhat in contrast with Benkler and Nissenbaum's (2006, 401) conceptualization of commons-based peer production, which suggests that individual contributions must be suitably small or "fine-grained", in order to "capture contributions from large numbers of contributors whose motivation level will not sustain anything more than quite

small efforts towards the project." Our geospatial findings emphasize that only a small group of platform users engage in prosocial stewardship of the system, and yet are able to make a significant impact on overall repair and maintenance of this inalienable common resource. Among our informants, while some indeed contribute only the minimum effort needed toward returning a bike, we also observe many user-maintainers who go well out of their way in order to repair the system, returning bikes to empty hubs, reporting maintenance, and cleaning trash out of their baskets. Thus, many user-maintainers engage in acts of pro-social stewardship not just as is most convenient for them, but also in the way they think will best serve the system and other users.

The User-System Repair Paradox. Our user-maintainers, akin to the guardians of an inalienable wealth, are caught between competing interests. As Curasi et al. (2004, 611) describe, "at the risk of loss or damage, caretakers can and must share with group members the positive effects that emanate from inalienable possessions." Our informants have similarly conflicting feelings about the other users of this inalienable resource. They concurrently express animosity toward users who leave the bikes in bad situations, while also, through the act of repair, acting as caretakers who ensure the bikes are available and in good condition for future users. Jason talks about rescuing the bikes, although rescuing in this program is a return to a temporary state wherein the bike is readily available for an uncertain future of use or misuse,

> I mean, I almost feel kind of like, at times I feel a little bit almost paternalistic about the bikes. Like I find them in these alleys, next to some party house and they're just in the bushes on their side and I'm like, "Oh man, I got to rescue this poor bike. These guys are abusing this poor thing."

Steve similarly describes bounty hunting as a heroic act, "getting the bikes back to the hubs, picking them up, saving them. A lot of times they're just thrown to the side of the road." Despite

detesting the abusive and careless users who leave bikes in bad situations, user-maintainers also go out of their way to care for the user. If a bike is locked in a location where they consider it likely the user is intending to return from, even if the bike isn't properly reserved, bounty hunters will often leave the bike in disrepair from a system perspective in order to facilitate what he anticipates the user's practice to be. As Anthony describes,

> …if someone else seemed to need to have the bike, I wouldn't snatch it and return it for my dollar when they actually wanted to use it… often, I think about like, is there anyone around here? Like this bike is in a really weird place. Like someone probably rode this here, and probably hopes to get it and take it back, you know? So, I'll think about that occasionally, and sometimes leave a bike if I really feel like probably someone wants to use it to return.

Stewardship behaviors are both prosocial and other-focused, sacrificing "short-term personal gain in order to protect the long-term well-being of others" (Hernandez 2012, 173). However, for our informants, it isn't always clear who that other should be. On one hand, the system is designed to facilitate a certain kind of use, which requires bikes to be available at hubs where users expect to be able to find them. But on the other hand, for users to actually engage with the system and incorporate it into their practices, they need to be able to take the bikes when and where they are needed, which is not always easily accessible at a hub. Because peer-production supports differing standards of contribution, user-maintainers must make a personal decision on what repair means for them. While Anthony chooses to leave a bike, he thinks a user might come back for, Michael actively prioritizes the system, priding himself on retrieving bikes he knows users hid in the hopes of being able to ride back.

> It's fun. It can be dangerous feeling… I've found bikes in bushes, like they'll hide them in the bushes. So, people won't take them. Then I have to go into the bushes and get them and do all kinds of stuff like that. Parked all kinds of crazy places, so that makes it kind of fun. I've gotten them before, and then you're literally like... They're trying to hold on to them, because it's so far away from a hub. You can tell they don't want you coming and grabbing them. That makes it kind of fun and exciting. Oh, yeah [I go and get the

> bikes]. I've got to get the bounty. Yeah. I get the bike, and then I take it… It's fun. It's solitary in a weird way. Which I think bounty hunting in general probably is'

Michael's standard of repair valorizes his own success and achievements, and echoes more the conventional view of a "bounty hunter" other user-maintainers like Jason shy away from. Michael's goal is to get another point, and repair the system as administrators intended, without considering the individual user experience beyond a challenge for him to overcome. Other user-maintainers like Jeff struggle with this balance of morality in repairing the system and facilitating individual experiences to optimize repair,

> … there are a lot of stray bikes out there, I sort of wonder about the morality of bounty hunting. So, narrowly legally, if there's a stray bike that's out there that's not on the clock, that somebody hasn't reserved or isn't holding its fair game, right? And the system probably works better when bikes are at hubs that people can find in a map and know they're there. If you have lots of bikes spread all out and there are hubs that are empty, people go to them. And, they want to use the system, they can't... On the other hand, clearly people leave bikes because they expect them to be there. You know, I go to Sundance and there's a bike right there. There's somebody inside Sundance, and they thought that they could come back and get it. And if I return it, you know, it's legal to do that, but they're going to come back, and they're going to have to walk the two blocks of the hub that I just did to make a buck that I didn't really need… as I'm doing this, I have sort of moral arguments with myself about whether even though I know it's legal and by the rules, is it really sort of the right thing to do, or… [is] the right system is actually have some chaos out there. The bikes just spread where people want them, and they just take the chance that it'll be there when they done shopping… I don't know.

By definition, an inalienable wealth belongs not to an individual, but to the group (Curasi et al. 2004). The system, while facilitating this emergent peer production, has no authority to limit or order individual engagement (Benkler and Nissenbaum 2006). Thus, users must walk a difficult line in determining exactly what repair means in this context, whether preserving this inalienable community resource should prioritize the user or the system's design. From a system perspective, repair is a narrow binary, which does not allow for the spectrum of repair and disrepair we actually observe in practice. Benkler and Nissenbaum (2006) emphasize that because users self-select into peer production, it is critical for the system to have a way to 'weed

out' contributions which are not productive for preserving this inalienable resource. However, the system's narrow definition of repair, namely being locked to a station, allows for a number of behaviors, such as that in Figure 4.3. This bike, while technically repaired from a system level, is disrepaired from a user perspective, discouraging future use by making the bike more difficult to access, and perhaps even preventing use altogether because the solar panel needed to charge the electronic keypad to unlock the bike is blocked by the hub. Indeed, a user-maintainer would not receive credit in this situation for unlocking, righting the bike, and re-locking it, since the system viewed it as already "repaired." In general, our informants try to prioritize the user experience over repair as defined by the system when they are faced with a choice between the two. As Steve describes, "There's times when I can tell that the people who rode the bike to that area, they're still there and you know that they're going to use it. So, I usually don't steal other people's bikes if I think that they're going to be used by them."

Figure 4.3. A "Repaired" Bike from a System Perspective

Another way user-maintainers care for users is by correcting their mistakes, often saving users even when they haven't followed the rules of the system or leave bikes in bad situations. As Jeff describes, the misuse of bikes according to the terms of the platform frustrates him,

> … it's annoying when people lock them up in what's not a public space, like in the yard behind a fence or a stairway. It's annoying when people, I think it's called free locking, when they don't actually lock it to any fixed object as you're supposed to. They just lock the bike to itself. And that's technically not in coordinates with the terms of usage. You know… you take out the bike, it's yours while you're using it, but when you're done with it, use that U-lock to lock it on some fixed object, because it's not your bike, it's PeaceHealth Rides'.

And yet, he shows great care toward not only the bike, but also its user who failed to complete the ride and properly secure the bike, even going so far as to end the ride for them to make sure they wouldn't be charged more, when he could easily have let them be punished by continuing to be charged for the trip,

> I once had a case, I wasn't so much annoyed, is just really sorry for the person, where I was looking for a bike, those on the map, and I came across a nearby bike that wasn't on the map. I looked at it, it had… over four hours of use time. Why? Because they didn't even lock it back up to itself. They just pulled up the bike, got off of it and walked away, and they're still being billed. So, in that case, I took the U-lock out of the thing, locked it for them to turn it off, and then unlocked it and rode it away. But I mean… they were charged for four hours, which is a ton of money.

Thus, user-maintainer stewardship of this inalienable resource is more difficult that it might seem, with stewards constantly negotiating who their other-facing prosocial behaviors should benefit, in order to best preserve this platform as a common resource for the community.

Discussion

In this research, we uncover an emergent commons-based peer production carried out through individual stewardship of what is perceived as an inalienable community resource. In

many ways, the very nature of this access-based platform makes this a surprising occurrence, since its underlying market mechanisms and structural design would seem to allay the likelihood of it becoming an inalienable wealth. Here, its occurrence was organic, without central design or even explicit awareness from the system. Managerially, we posit that by developing capacities for distributed maintenance, market systems can increase both their social viability and environmental and economic sustainability. Here, we suggest three ways managers of such platforms might be able to formalize and encourage the emergence of these beneficial prosocial consumer behaviors. First, we posit that system administrators can promote perceived ownership of their platform, and thus peer-production through stewardship, by aligning the system with those community-held values and ideals with which a group identifies. There are numerous examples of people coming together to engage in distributed maintenance of the commons, such as communal engagement to repair a key resource (de Laet and Mol 2000), community engagement with restoring a historical artefact (Lejeune 2019), or community repair following a natural disaster (Weinberger and Wallendorf 2012). By aligning a platform with strongly held group ideals, these platforms can become inalienable resources, which provide tangible anchors of a community's identity in the current moment, and "symbolic vehicles" which carry this identity forward into the community's future (Curasi et al. 2004, 619). Stewardship is thus prompted by psychological ownership of this inalienable resource, which exists at a broader level than the administration or organization of the system itself (Avey et al. 2009), as illustrated in this context by user-maintainer consistency throughout several changes in operators.

Second, our research emphasizes the importance of careful thought about how to incentivize this valuable behavior. The stewardship and commons-based peer production literatures both assert the detrimental impact of monetary rewards on such prosocial behaviors

(Hernandez 2012; Benkler and Nissenbaum 2006). The platform designed a simple, economic incentive to encourage distributed maintenance by users, but we find that a significant number of users, enabled by very minimal economic incentives, provide incredible value to the system through their user repair. Underlying this are a number of factors, including personal achievement and service to the community and system which actually motivate user-maintainers to engage in hundreds of instances of repair. Users engage with these economic incentives in ways the system did not anticipate, racking up hundreds or thousands of dollars' worth of credit as a means of keeping track of their achievements. Because platform managers do not understand consumer practices of distributed maintenance, they miss opportunities to enable and promote these prosocial behaviors that economic incentives actually hinder. By implementing a reward system, administrators would allow users to "derive intrinsic benefits from working toward a valued end" (Hernandez 2012). For example, perhaps badges akin to that used by other commons-based peer production projects like Wikipedia could be implemented on the access-based platform's app. Regardless, implementation rewards system not based on economic motives alone would allow system administrators to better recognize, motivate, and encourage these stewards and their individual contributions toward the collective resource.

Platforms also need to carefully consider how to punish destructive behaviors on the part of users. Consumer-defined usage of the system creates distributions other than that intended by the system. However, these are sometimes positive patterns of use that actually facilitate future use and distributed maintenance, such as leaving bikes out of stations in areas they are needed or desired that are not currently supported by the platform. Thus, consideration of current usage patterns can provide valuable insights into how to better structure the program in terms of building new infrastructure to better support usage patterns. For example, the geospatial findings

from this research were used by the platform to identify areas within the system where bikes were frequently being left out-of-station. These areas with high drop rates can be used to identify locations for future bike stations, in order to reduce the need for repair within the system by matching station availability to user behavior.

Finally, our work demonstrated that the collectivist behaviors of our user-maintainers emerged not from "relationship-centered collaboration" as described by stewardship theory, but instead "short-term opportunistic behaviors" which largely occur conveniently and spontaneously as a dispersed practice (Schatzki 2002) in conjunction with our stewards' everyday lives aligned with their beliefs and values. Thus, we propose that in order to develop capacities for collective stewardship practices, platforms need to move beyond simply encouraging collective thinking and instead redesign systems that enable convenient individualistic behavior towards a collective end. By designing platforms around incremental, asynchronous efforts, system administrators can amalgamate the individual work of many into a form of peer-production which together serves to effectively maintain and repair a community resource.

Theoretically, this work also contributes to the sparse marketing literature on object repair, especially as it examines a context other than repair conducted or contracted by owners. Here, we highlight two important levels of repair, the physical repair of the objects themselves, but also repair of the platform achieved by reintegrating misaligned materialities. Finally, it contributes to an examination of repair from a practice perspective, making more evident how the meaning and doings of a practice rely upon these different levels of repair in access-based platforms.

We suggest this research raises many avenues for future research, outside of our localized context of a bike sharing program. As access-based platforms grow in popularity across the world, so does the eminent need for consumer engagement in order to combat the sometimes crippling cost of repair and maintenance in these contexts (City of Redmond 2016; Economic & Planning Systems, Inc. 2013). It would be valuable to investigate our model in communities whose identity is not closely tied to the perception of their access-based programs. Dallas Texas, for example, was once home to numerous scooter sharing programs, but the debate over their safety and irresponsible use which left them blocking sidewalks and floating in the Trinity River resulted in a two-year ban from the city (Glaser 2018; Rickard 2021). If communities are to successfully enact these programs, it remains to be seen if they are able to align their platform with group identity and foster the prosocial consumer behaviors (and indeed buy in) necessary to sustain this resource.

Overall, our findings indicate that because of great heterogeneity in consumer practices and motivations, distributed maintenance of access-based platforms through peer-produced stewardship of an inalienable community resource is fraught with unique challenges in diagnosing repair requirements and coordinating distributed and dedicated regimes of maintenance. Better understanding of how consumers enter into and participate in distributed maintenance regimes can positively impact platform performance.

Bridge

In the following chapter, I conclude this dissertation with a summary of the research presented. I then turn my attention to the community-focus present throughout this dissertation

and reflect on the opportunities and challenges I observed and experienced during the course of my studies. Finally, I present recommendations and guidance for future researchers who wish to undertake community-focused research.

CHAPTER V

CONCLUSION

This dissertation has demonstrated the impact of socially situated individual consumer practices which contributed to individual and community well-being. First, in Chapter II, I presented an emergent model of practice recovery in the context of young adults recovering the practice of bicycling for transportation during college, to better understand how individuals remake a previously abandoned social practice following a gap in its enactment. In this chapter, I emphasized the importance of taking a multi-level perspective on practices during this recovery process and in practice theory more generally. Further, I identified four misalignment gaps, or areas within this recovery process where risks of misalignment are elevated, and active negotiation and improvisation are needed to overcome the challenges they present. Next, Chapter III provided a test of this model in the context of an individual recovery of a social practice following a simultaneous community-wise disruption caused by the COVID-19 pandemic. In this chapter, I extended and tested the model proposed in the second chapter, problematizing individual anticipated or attempted recovery of the social practice of exercising at the gym. Finally, Chapter IV examined the ways in which individual consumer practices can contribute to community well-being through the maintenance of a bike sharing program, viewed as an inalienable community wealth, which I suggest inspires collective commons-based peer production through individually held stewardship practices of system maintenance.

All of the chapters in this dissertation were born out of a community focus, recognizing a problem in the surrounding world and seeking to address it in collaboration with community stakeholders. While this approach is something we often encourage researchers and doctoral

students to undertake, community-focused research presents a unique set of opportunities and challenges a researcher must consider before embarking. Thus, in conclusion, I would like to speak to some of the opportunities and challenges I encountered while undertaking this research, to perhaps help guide and advise future researchers. I will first outline the challenges, before closing with some of the many opportunities and benefits I see in this research approach.

Compared to laboratory or online research through online panels such as Amazon Mechanical Turk or Prolific, community-focused research is resource intensive. It is both time consuming and expensive to undertake, requiring additional resources and time to access, incentivize, and collect data from relevant community informants. Compared to the impartiality advised in a positivist approach to research, community-focused research takes an interpretivist approach and therefore requires a certain literacy with the community you engage (Hudson and Ozanne 1988). Thus, the researcher must spend time in and engaging with the community before and during data collection. During the course of this research, I went to community meetings, participated in multi-discipline community grants, and met with countless stakeholders to better understand the problems I sought to address, both through informal 'collisions' in the course of my daily life, and through conducting interviews and focus groups. Understanding these stakeholders, who are inherently a part of and deeply affected by the problems I sought to address through this research, is crucial to the success of community-based research. These collaborations and interactions both helped me to understand the needs and concerns of the community, to ensure my research could meet and address those needs, while also gaining trust and community literacy which allowed me greater access and granted me legitimacy among future informants.

Of course, the very nature of community-focused research, especially in collaboration with local stakeholders, can lead the researcher far afield theoretically. This problem-based approach often requires and necessitates adaptation, modification, and integration of multiple theories in order to best capture the phenomenon of interest. For example, the fourth chapter in this dissertation began as an exploration of existing theories of repair in a non-ownership context, but a theoretical understanding of *why* these behaviors occurred necessitated a pivot to integrate three theories borrowed from management and anthropology literatures, commons-based peer production, stewardship, and inalienable community wealth. The researcher must be flexible enough to adapt, but also careful to keep ahold of their focal area of interest, and not be led too far astray by the numerous interconnected problems they will doubtless encounter in the field. As part of my participant observation fieldwork in the Chapter IV, I participated in a multi-discipline research grant in collaboration with community stakeholders such as local government and transportation officials. A key task in establishing the scope of our research was reigning in the desires and interests of these diverse stakeholders, and, crucially, eliminating potentially interesting but disparate questions. For example, we considered but eliminated or largely paired down questions of equity in the distribution of bike share stations and consumer patterns of grocery shopping in response to the COVID-19 pandemic. Such editing is crucial in order to avoid the problem of one's research being too broad to be able to provide meaningful depth into any problem addressed.

Another aspect of setting reasonable expectations with community partners comes in timelines and deliverables. The relationship with these community stakeholders should be mutually beneficial, both for the utilitarian motivation of facilitating future research opportunities, but perhaps more importantly for the ethical need to respect and protect

participants by maximizing anticipated benefits and minimizing potential risks. A key part of creating a positive and mutually beneficial relationship is communication. A community partner wants to know what they will have to give and what they will get in return. While of course maintaining research ethics of impartiality and pursuit of the truth, the researcher should also work to deliver something useful and beneficial for the organization. For the most part, this is distinct from the scientific articles that will hopefully be published from this collaboration. For example, I worked to create reports summarizing, in a practitioner-friendly manner, my surveys of the bike share program's membership for its system administrators. It's also important to communicate and adjust the research timeline to better match that of community stakeholders. While it took multiple years of work to write and submit the article based on Chapter II to a journal, during this time, I also created and delivered multiple industry-style reports to the stakeholders I worked with. One of the gyms in Chapter III requested quick facts on a two-day turn around which would be relevant to an op-ed one of their managers was writing for the local paper, which I was more than happy to deliver, even though from a research perspective, data analysis was not complete at that stage. Establishing a mutually beneficial relationship, therefore, requires both flexibility on the part of the researcher, with quicker timelines than they might be used to, as well as up-front communication to set reasonable expectations with the community partner as to what they can expect and when.

It also can be difficult to negotiate the exact nature of this partnership between the distinct academic and industry best practices. For example, the institutional review board required that the distribution of survey invitations to the gym's membership be sent not from the researchers directly, as we could not be given access to that database, but instead by the gyms themselves. Although it is not solely a consideration in community-based research, researchers

also need to carefully consider how to facilitate participation of community members, who vary in terms of consequential variables such as language fluency, technological access, socioeconomic status, and work schedule. Part of my fieldwork in Chapter IV also involved conducting focus groups for another project not included in this dissertation, in which the research team sought to access groups of consumers who commuted via particular modes. It might go without saying, but the group of informants who owned and largely drove their own car varied dramatically from those who, for example, relied upon public transit. Thus, it was crucial to consider the timing of these meetings to facilitate less-flexible work schedules, offer interviews in Spanish, the second-most spoken language in the community, and ensure the incentives for participation were suitable but not coercive in order to facilitate participation across a wide range of relevant community members without exclusion.

Community partners may also be unwilling or unable to release data for research use. The geospatial data utilized in Chapter IV, for example, was almost impossible to access while the bike share program was owned by Uber. It wasn't until the city took over operations that I was able, as a researcher, to access this data, at which point the city and bike share administrators very generously gave me access to all of the usage data from the program's inception. Researchers should also be aware that access to this data, especially when proprietary or sensitive, may also come with additional restrictions or guidelines around publishing, access, and attribution. Lastly, of course, the researcher should be careful to not get too bogged down in the specifics of a particular context to the detriment of extrapolation beyond this community. Great community-based research addresses local issues while also making theoretical and practical contributions which can be implemented beyond the focal community.

Despite these obstacles, community-based research also provides many rich opportunities. Unlike the tightly controlled environment of a laboratory, the real world is messy and complicated, with multiple factors influencing consumer behavior at any given moment. Community-based research doesn't shy away from this, instead meeting consumers as and where they exist, in order to understand the factors which influence their daily lives. In a similar vein, community-based research forces the researcher to examine in situ those problems and variables which are consequential not just theoretically or to the field, but in practice. Just because a factor is significant in the lab does not necessarily mean it will be significant in practice. Community-focused research is concerned with those factors that make a measurable impact in context, as the consumer goes about their daily lives, which are also incredibly valuable in practice for public policy makers and marketers who want to know how to best invest resources to create measurable impact on consumer behavior. As an example, in Chapter II, we initially theorized relationships between bicycles and helmets would impact helmet usage rates among our informants. We quickly realized that external factors resulting from the way the practice of bicycling was imbedded in local social life were much more impactful and closer to mind for our informants. Thus, consideration of this consumer practice in context allowed us to uncover an unexpected and consequential factor which would have been difficult to identify in a more tightly controlled traditional research context without a community-focus.

Working with community partners also helps researchers to step out of their own assumptions. We all know the average researcher is distinct from the average consumer, and therefore the assumptions and predispositions a researcher might bring to the table often do not reflect the needs of consumers and communities the researcher might hope to impact and improve through their research. Before I embarked in the projects described here, I found myself

embedded in the community, and talking to those "in the know" – stakeholders, system administrators, long-time residents, and everyday consumers I encountered using the bike sharing platform. I observed and listened to their concerns, the issues they encountered, and tried to dismantle the assumptions I'd come into the project with. Many of the issues and questions I included in my research were directly shaped by these conversations and the input of these community partners. In Chapter II, I'd never considered the distinct materiality of the bike share bicycles as opposed to the average personal bicycle until I talked to consumers and realized the heaviness of this bicycle deeply impacted their practice recovery. As another example, in Chapter III, we realized gyms were interested in examining the consumer-gym relationship and efficacy of their communications during the pandemic, something we hadn't included in the initial draft of our survey. By recognizing the practical importance of these considerations and integrating them into the final survey, we were able to improve our research and its future implications, while providing value to our community partner.

Community-focused research also allows for built in member checks. Because the researcher is deeply embedded in the community, and has informal contact with community members and stakeholders, there are numerous opportunities for experts to check the logic, plan of action, and findings to ensure they make sense in this context. The researcher therefore hopefully avoids obvious mistakes which would be apparent to anyone who is a part of the community the researcher hopes to influence. These blunders are not unique to research. Anyone who lives in a cold climate could have warned Tesla that their flush door handles would be prone to freezing in winter, and yet they were unaware of this issue until their Model Y and Model 3 vehicles left their consumers unable to even enter their vehicle (Butler 2022). Community-focused research allows the researcher to avoid becoming a cautionary tale, by building in

opportunities for informal feedback from community members and stakeholders, to avoid obvious omissions or obfuscations which bias the practical validity of the research.

Finally, and perhaps most importantly, the researcher is able to make a real impact on the world around them through their research. Of course, we hope every article we write will be consequential, but working with and providing answers to community stakeholders allows a researcher to have a measurable and meaningful impact in the real world, to hopefully give back and make the community they research a better place. For example, the bike share platform I worked with in my research for the fourth chapter made several significant changes to their station locations, pricing, and outreach last fall, partially as a result of the membership surveys and reports I had created for them. I can't understate how rewarding this real-world impact is. Community-focused research, such as the projects I undertook here, has an underlying goal of improving the world and community around you, and by working with and making your findings accessible to community partners, research can do just that.

I hope this dissertation and brief concluding summary of some of the challenges and opportunities of community-focused research encourages more researchers to undertake this endeavor. Community-focused research might be more complex and resource intensive than traditional research approaches, but I think the potential benefits far outweigh the increased difficulties. I argue that community-focused research, with its in-situ contextually based examination of critical problems facing consumers and communities is crucial for researchers hoping to impact and improve the local and global community through their work. I hope my research has and will continue to exemplify this in the future.

APPENDIX

LINK TO INTERACTIVE GEOSPATIAL VISUALIZATIONS

The interactive visualizations I created from geospatial data used in Chapter IV can be accessed using the following link:

https://milou.shinyapps.io/PHRidesCapstone/

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