

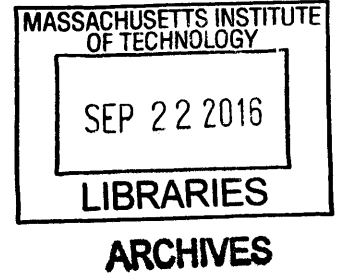
**Socio-Spatial Entanglement Theory, the I2S2A Method, and Civil Legal  
Service Realized Accessibility**

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Submitted to the Department of Urban Studies and Planning in partial fulfillment of the requirements for the degree of  
**Doctor of Philosophy in Urban and Regional Studies**

at the

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

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**Socio-Spatial Entanglement Theory, the I2S2A Method, and Civil Legal  
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Most spatial and social service accessibility studies are unidimensional; they examine one dimension of service accessibility in isolation. These unidimensional studies are not responsive to the realities of service usage. This is because unidimensional service accessibility studies implicitly assume that spatial and social service accessibility factors are not entangled with one another. Everyday experience and common sense conflict with a unidimensional conceptualization of service accessibility. For instance, the ease of traveling twenty five miles to receive a service is different for the single dad receiving public assistance with no car and the single adult who has stable employment and a car. In fact, many types of differences between users could result in substantive differences in how service accessibility is experienced.

In this thesis, I develop a theory, socio-spatial entanglement theory, and method for realized service accessibility research. Socio-spatial entanglement theory is a way of theorizing service accessibility that accounts for the why and how of service accessibility. Socio-spatial entanglement theory posits that spatial and social service accessibility factors are necessarily entangled and that these entanglements capture and explain the lived-experience of service accessibility. This theory is based on applied Critical Realist conceptions of the ontology of the social world.

I also develop a method, the integrated, interactive socio-spatial accessibility (I2S2A) method, to explain socio-spatial entanglements and generate explanations of the why and how of realized service accessibility. The I2S2A method is informed by Critical Realist understandings of how researchers can know the social world.

Lastly, I apply socio-spatial entanglement theory and the I2S2A method to explain the factors and causal mechanisms that mediate civil legal service usage amongst low-income households. These explanations allow policy makers and civil legal service providers to design interventions that target the underlying phenomena that impact service usage in furtherance of increasing realized access to civil legal services.

Dissertation Supervisor: Professor Amy K. Glasmeier

Department of Urban Studies and Planning

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# Chapter 1: Introduction

Social services are an important component of the American social safety net (Levitan, 2003). From mental health, to healthy nutrition, to legal representation, social services are designed to provide vulnerable persons with basic needs and, ideally, to empower them (Johnson, 2014; Kim, Thomas, Wilk, Castro, & Hoge, 2010; Macias, 2008). Social services are provided to the populace by a variety of actors. Providers range from private and public actors and include actors such as government agencies, non-governmental organizations, and community organizations (Narayan, 1999). The provision of social services is critical to the functioning of civil society both in terms of ensuring a basic standard of living and protecting fundamental rights (Johnson, 2014; Levitan, 2003). However, to realize this role, social services must be provided in an equitable and inclusive manner to all eligible persons (Anderson, Wu, Cho, & Schroeder, 2016).

Service accessibility studies are a common tool used to evaluate whether service providers are delivering services in an equitable fashion (Burgess & DeFiore, 1994; Comber, Brunsdon, Hardy, & Radburn, 2009; Economides, Blacksell, & Watkins, 1986; Hare & Barcus, 2007; Joseph & Bantock, 1982; Law, Dijkstra, Douillard, & Morgan, 2011; Luo & Wang, 2003; Mcgrail & Humphreys, 2015; Ni, Wang, Rui, Qian, & Wang, 2015; Rosero-Bixby, 2004; Tanser, Gijbetsen, & Herbst, 2006). Whether services are delivered in an equitable fashion requires an examination of both the needs of the population and the experiences of actual service users (Guagliardo, 2004; Khan, 1992; Schultheis & Glasmeier, 2015). Research on the needs of the population can tell us about where and what services to provide, but service needs assessments cannot reveal the factors and causal mechanisms that impact whether and how people use a service (Field & Briggs, 2001; Hawthorne & Kwan, 2012; Kwan, 2013; Weber & Kwan, 2003). Both sides of the coin are needed to understand service accessibility and both types of studies can offer policy actors and providers with useful knowledge. That being said, based on current service accessibility research trends, it does not appear that a single study can empirically address both sides of the coin at once.

However, there is a gap that has gone largely unnoticed in service accessibility research. Examinations of who needs a service and how people use a service suffer from a

fundamental disconnect from the reality of service accessibility. This is because service accessibility studies, whether of need or usage, often overly rely on analytical concepts and lack an ontologically grounded theory of service accessibility (Allard, 2004; Guagliardo, 2004; Ikram, Hu, & Wang, 2015; Khan, 1992; Schultheis & Glasmeier, 2015; Schultheis, 2014). This research advances the service accessibility field by addressing this gap.

Service accessibility studies typically take one of two forms (Khan, 1992).<sup>1</sup> The first form is spatial accessibility studies. Spatial service accessibility studies examine the spatial relationship between actual or potential service users and service providers (Schultheis & Glasmeier, 2015). The second form is social service accessibility studies. Social service accessibility studies examine how characteristics of the user population such as age, income or language impact service usage (Patel, Balmer, & Pleasence, 2008). Social service accessibility studies might also examine the impact of organizational characteristics of a provider such as staffing, employee experience, and employee-user interactions on service accessibility (Schultheis, 2014; Yamada, Chen, Yamada, Chiu, & Smith, 2009).

Spatial and social service accessibility studies tend to be unidimensional; they examine one dimension of service accessibility in isolation. These unidimensional studies are not responsive to the realities of service usage. This is because unidimensional service accessibility studies often implicitly assume, due to their theoretical framing, that spatial factors and social service accessibility factors are not entangled with one another.

Everyday experience and common sense conflict with a unidimensional conceptualization of service accessibility. For instance, the ease of traveling twenty five miles to receive a service is different for the single dad receiving public assistance, with no car, and two jobs

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<sup>1</sup> This research engages the service accessibility literature and a portion of the health care accessibility literature. The broader accessibility field is large and spans multiple substantive domains including, but not limited to, transportation modelling. The larger accessibility field is in fact so diverse that I believe an attempt to engage many domains would be stymied by differences in theoretical and methodological commitment. It would also likely limit the researcher's ability to deal with a sub-field in a responsive and context sensitive fashion.

with strict work hours versus a single adult with one job with flexible work hours and a car. In fact, many types of differences between users could result in substantive differences to the accessibility of a service.

Spatial and social service accessibility factors are entangled with one another and interact. These entanglements cause the variance of how populations' experience service accessibility. For instance, how the language a person speaks impacts service accessibility cannot be explained by spatial or social factors in isolation. A person's ability to travel to the service delivery location (spatial) is entangled with their ability to understand information related to travel (social). The ability to travel cannot be separated from the informational needs connected to travel. For instance, traveling to the service delivery location involves both moving through space and understanding the rules and norms related to the chosen travel mode. The impact of language on service accessibility is an interaction of spatial and social factors that cannot be explained by just examining spatial or social service accessibility factors in isolation.

### **1.1. The Service Accessibility Silos**

A substantial portion of service accessibility research is siloed into spatial or social accessibility research (Guagliardo, 2004; Khan, 1992; Patel et al., 2008). Research in the spatial silo posits that the spatial relationship between actual or potential users and service providers is a primary factor in evaluating whether a service meets user demand. This approach's ability to measure effectiveness of a given delivery system is limited by its inability to account for how social and organization factors impact service accessibility.

In contrast, research in the social silo recognizes the relevancy of social and organizational characteristics. Social service accessibility research, however, fails to adequately conceptualize that service accessibility is impacted by spatial factors and that social attributes are unavoidably spatialized. Research in the spatial silo tends to over-privilege the importance of spatial location and under-privilege the impact of the social on service accessibility. In contrast, research in the social silo tends to assume an aspatiality of service accessibility thus under-privileging the spatial aspects of service accessibility.



Examining service accessibility as embedded in one of these two silos causes several problems. These problems result in researchers and practitioners misunderstanding service accessibility. Siloed service accessibility research fails to account for how factors from different silos are entangled and interact with each other and how these entanglements mediate service accessibility. At a more abstract level, siloed research conflates the analytic distinction between spatial and social accessibility factors with the actuality of service accessibility.

## **1.2. Breaking the Service Accessibility Silos**

Some service accessibility researchers have identified the practical deficiencies of siloed service accessibility research. For instance, service accessibility researchers identified that many measures of service accessibility are disconnected from potential user perceptions of service accessibility (Hawthorne & Kwan, 2012). Other researchers have shown how daily schedules that impact a person's ability to use a service are associated with social attributes of potential service users (Ren, Tong, & Kwan, 2014). These critiques, although insightful, only implicitly challenge the deeper assumptions of siloed service accessibility research. These studies hint at socio-spatial entanglements but they neither offer a theory of socio-spatial entanglements nor do they explain how socio-spatial entanglements shape service accessibility.

Researchers require two things to ground service accessibility in the actuality of service accessibility. First, they require a theory of service accessibility that is able to conceptualize the relevance of socio-spatial entanglements and interactions. Second, researchers and practitioners need a method that explains how socio-spatial entanglements impact service usage. These two things would allow researchers to identify inequitable service access and explain part of why those inequities occur. This identification and explanation would, in turn, allow policy actors to craft interventions targeted at the underlying causal mechanisms that produce inequitable landscapes of service accessibility.

## **1.3. Dissertation Form & Research Questions**

In this section, I describe this dissertation's format. This dissertation is divided into three sections: theory, method, and empirics. The theory section consists of chapters two and

three. The method section consists of chapters four and five. Lastly, the empirics section consists of chapters six, seven, and eight.

I develop *socio-spatial entanglement theory* in this dissertation's first section. Socio-spatial entanglement theory is a way of theorizing service accessibility that accounts for how and why people use a service. It incorporates the insights developed by existing research while grounding service accessibility in the actuality of service usage. It accomplishes this by explaining how and why people use a service as opposed to describing accessibility using the analytic distinction of the spatial and social.

The theory section consists of chapters two and three. Chapter Two is a literature review of how researchers conceptualize service accessibility. In Chapter Three, I develop and propose socio-spatial entanglement theory.

In the second section of my dissertation, I develop *the integrated, interactive socio-spatial accessibility (I2S2A) method*. The I2S2A method allows researchers to generate explanations of why and how people use a service. By explaining what factors and causal mechanisms impact realized service usage, the I2S2A method offers policy makers and service providers the knowledge needed to develop interventions to facilitate service usage.

Section two consists of chapters four and five. In Chapter 4, I discuss what a realized service accessibility method must address in light of the ontology of socio-spatial entanglements and how researchers can learn about them. In Chapter 6, I develop and describe the I2S2A method.

The third section of my dissertation is an empirical investigation of the usage of civil legal services provided by the Legal Services Center of Harvard Law School (LSC-HLS). The empirical section of my dissertation serves two purposes. First, the empirical research ground-truths socio-spatial entanglement theory and the I2S2A method by applying them in a concrete context. Second, the contents of the empirical section advance researchers' understanding of civil legal service realized accessibility by identifying and explaining the socio-spatial entanglements and interactions that impact civil legal service realized accessibility.

The empirical section consists of chapters six, seven, and eight. In Chapter 6, I locate this dissertation's empirical research in the larger body of civil legal service accessibility research. I also discuss how socio-spatial entanglement theory expands and retheorizes civil legal service accessibility. In Chapter 7, I explain how socio-spatial entanglement theory and the I2S2A method were applied to generate explanations of the usage of the services provided by LSC-HLS. This study solely examines the people who used LSC-HLS's services and not persons who could or might use LSC-HLS's service. This focus conforms to the distinction in the service accessibility literature between potential and realized service accessibility research. Lastly, in Chapter 8, I present the findings of my investigation of the usage of LSC-HLS's services and discuss the implications of these findings for socio-spatial entanglement theory, the I2S2A method, and the provision of civil legal services.

## Chapter 2: The Service Accessibility Analytic Framework

Service Accessibility research varies by its subject and aim. For instance, a service accessibility researcher might examine how easily different populations can access services (Kirwan Institute, 2014; Pearce, Witten, & Bartie, 2006). In contrast, another service accessibility researcher might examine the spatial distribution of hospitals relative to the population's spatial distribution (Bilasco et al., 2015). Although the types of service accessibility investigations are varied, most service accessibility research is similarly framed. I call the common framing that service accessibility researchers use to situate their research the service accessibility analytic framework. This framework structures how many researchers describe and study service accessibility.

In this chapter, I outline the service accessibility analytic framework using a two by two by two matrix. After proposing the matrix, I describe the matrix's three axes: type of user; type of accessibility factor; and scale of analysis. I then discuss one of the matrix's cross-sections, the user/type cross-section. Next, I identify the two assumptions that the user/type cross-section is predicated on. Lastly, I discuss two service accessibility research strands that challenge the user/type cross-section's conceptualization of service accessibility.

### 2.1. The Service Accessibility Analytic Framework

I use a two by two by two matrix to describe the service accessibility analytic framework. Many service accessibility researchers use this framework to structure their work. I accomplish two things by using a two by two by two matrix to describe the service accessibility analytic framework. First, the matrix is a useful summary of the analytic conceptualizations used in the service accessibility field. Second, it is a concise description of the field that allows researchers to better understand the unspoken framings that direct many current trajectories of service accessibility research.

#### *2.2.1. The Three Axes of the Service Accessibility Matrix*

In this section, I define the three axes of the two by two by two service accessibility matrix. The first axis of the matrix is defined by the scale of the research. Service

accessibility research either examines *aggregate scale* or *individual scale* accessibility. *Aggregate scale* accessibility research examines the accessibility of a service to people located in a geographic area (Crooks & Schuurman, 2012; Handy & Clifton, 2001; Joseph & Bantock, 1982; Luo & Wang, 2003; Radke & Mu, 2000; Talen & Anselin, 1998; Talen, 2003; Yigitcanlar, Sipe, Evans, & Pitot, 2007). *Individual scale* accessibility studies examine the temporal, behavioral, and mobility factors that impact whether a service is accessible to individual users (Guagliardo, 2004; Neutens, Schwanen, Witlox, & de Maeyer, 2010; Neutens, 2015; Schwanen, Kwan, & Ren, 2008; Schwanen & Kwan, 2012).

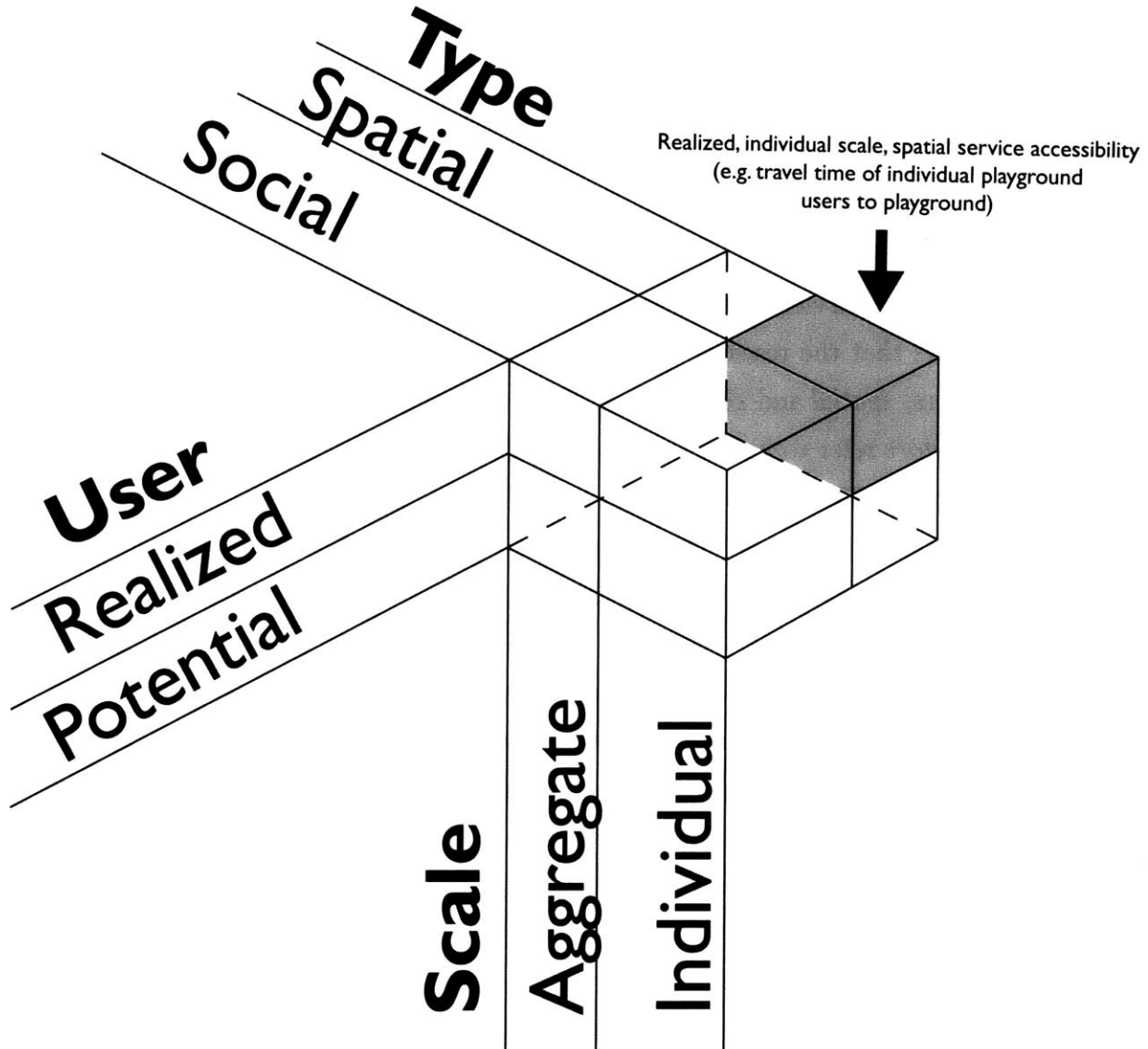
The second axis of the service accessibility matrix refers to the types of service accessibility factors that the research examines. There are two types of service accessibility factors, *spatial* and *social* (Case & Hawthorne, 2013; Khan, 1992; Neutens, 2015). *Spatial factors* refer to physical barriers that impede or facilitate service usage (Apparicio & Seguin, 2006; Burgess & DeFiore, 1994; Donohoe et al., 2016; Field & Briggs, 2001; Ikram et al., 2015; Mcgrail & Humphreys, 2015; Noorali, Luby, & Rahbar, 1999; Radke & Mu, 2000; Ursulica, 2016; Wang, 2012).

*Social factors* “stress the relevance [and necessity] of non-geographical barriers or facilitators on accessibility” (Patel et al., 2008). Examples of social service accessibility factors are gender, culture, language, socio-economic status, and the interactions users have with a provider (Barona & Blaschke, 2015; Haggerty et al., 2008; Neutens et al., 2010; Russell, Moulton, & Greenbaum, 2014; Wong, 2008).

The third axis of the service accessibility matrix captures the fact that researchers can either examine the population who *might* use a service or the population who *has* used a service. Studies of who *might* use a service examine *potential* service accessibility while studies of who *has* used a service examine *realized* service accessibility (Andersen, 2014; Donohoe et al., 2016; Field & Briggs, 2001; Guagliardo, 2004; Khan, 1992; Luo & Wang, 2003; Patel et al., 2008; Schultheis, 2014). An example of a *potential* accessibility study is a study that looks at the number of persons who live in the vicinity of a health clinic who *could use* the clinic (Patel et al., 2008; Tanser et al., 2006). In contrast, a *realized* service accessibility study of the health clinic would examine current or former clinic patients

(Haggerty et al., 2008). In *Figure 1*, I present a diagram of the two by two by two service accessibility matrix.

**Figure 1.** A diagram of the two by two by two service accessibility matrix.

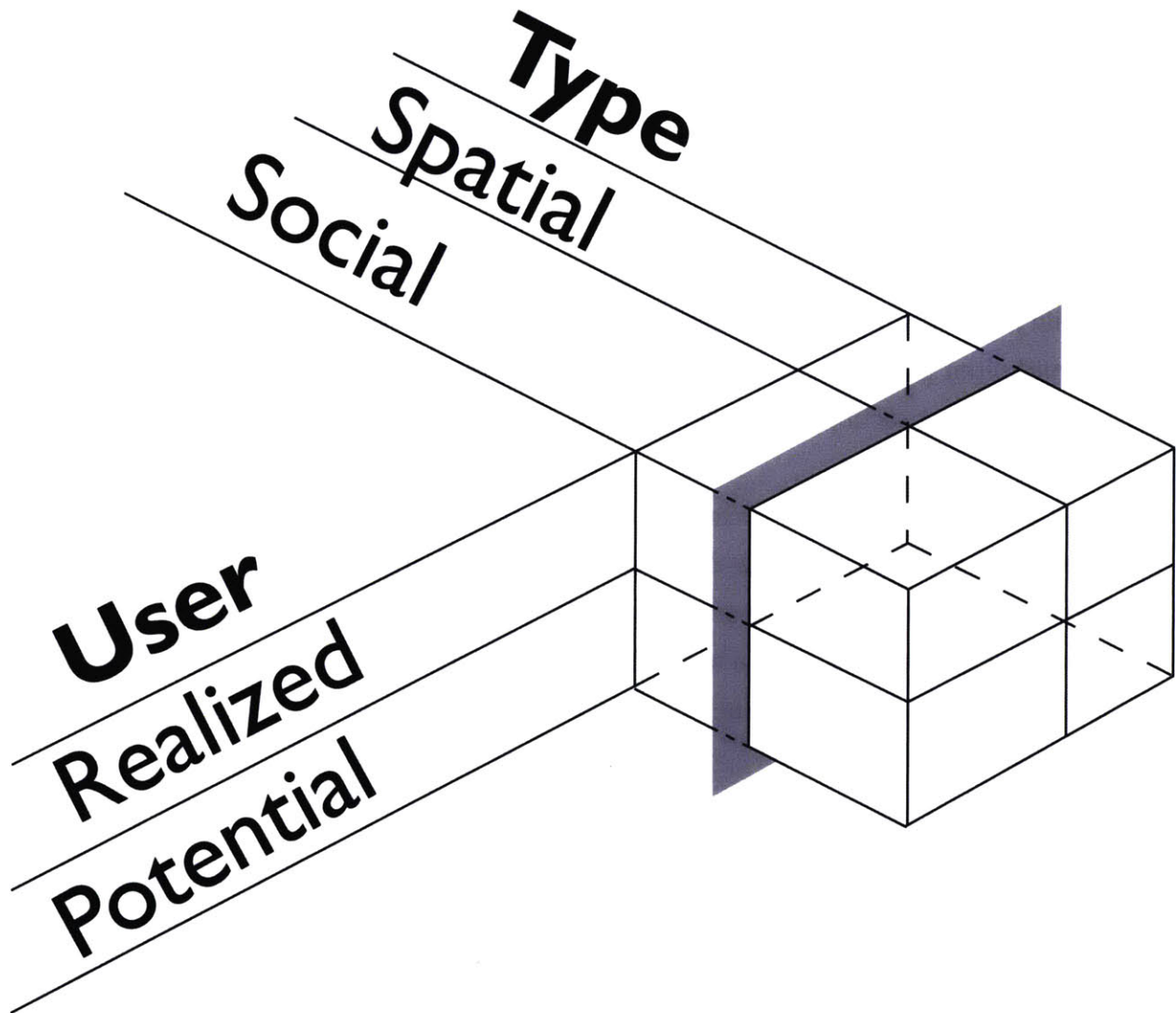


### ***2.2.2. The User/Type Cross-Section***

Khan (1992) first proposed the user/type cross-section in the early 1990s. Today, the user/type cross-section is a frequently used analytic framework in the fields of service and health care accessibility (Luo, 2016; Ursulica, 2016). Some researchers explicitly frame their research using the user/type cross-section, however, the user/type cross-section framing is often implicit in how service accessibility research is conceptualized (Burgess & DeFiore, 1994; Comber et al., 2009; Field & Briggs, 2001; Gharani, Stewart, & Ryan, 2015;

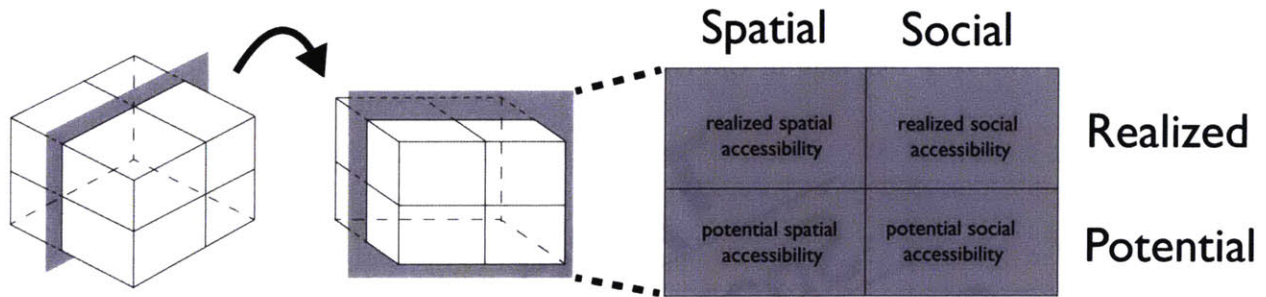
Guagliardo, 2004; Ni et al., 2015; Noorali et al., 1999; Rosero-Bixby, 2004). In *Figure 2*, I diagram the user/type cross-section.

**Figure 2.** An overview diagram of the user/type cross-section.



Today, researchers continue to apply the framing to service accessibility research from access to food to the accessibility of mental health providers around military bases (Schultheis & Glasmeier, 2015; Walker, Keane, & Burke, J, 2010). In *Figure 3*, I present a second diagram of the user/type cross-section with greater detail.

**Figure 3.** A detailed diagram of the user/type cross-section.



The user/type cross-section is predicated on two assumptions about how service accessibility can be understood. These assumptions are embedded in the user/type cross-section and often go unexamined. The two assumptions, however, are central to whether the user/type cross section can explain service accessibility.

First, researchers who use this cross-section implicitly assume that the types of things that mediate service usage can be divided into the two exclusive categories of the spatial and social. Second, researchers assume that the cross-section's four quadrants can be combined to fully describe service accessibility (Khan, 1992; Luo & Wang, 2003; Patel et al., 2008; Wang, 2012). The saliency of the user/type cross-section turns on the validity of these two assumptions.<sup>2</sup>

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<sup>2</sup> The user/type cross section does not explicitly define accessibility, service, or service usage. Service accessibility is implicitly defined as being divisible into four types, realized, potential, spatial, and social, although the adequacy of such a definition is questionable given the nebulous meanings of the terms realized, potential, spatial and social and the circular nature of defining accessibility, service, and service usage using these terms. Further, what constitutes a service and or what the important components of a service are is left open by the user/type cross-section. Lastly, what service usage (i.e. realized access) is left open by the user/type cross section. Service usage might occur when a person uses a service by walking in the door or it might be evaluated on some normative and or context sensitive criteria. For instance, depending on the service in question, service usage might only occur when a person uses a service to the extent that is warranted by their needs (either subjectively or objectively measured). Future research should attempt to define these terms in a manner that responds to the highly context-contingent and mutually dependent aspects of accessibility, service usage, and service. This research is examines



### 2.3. An Implicit Challenge of the User/Type Cross-Section

A small body of service accessibility research challenges the salience of the user/type cross-section. This body of research is divisible into two strands based on how the research challenges the user/type cross-section. In the paragraphs below, I describe each of the two strands and identify how each strand challenges the user/type cross-section.

The first strand of research challenges the second assumption of the user type cross-section. The second assumption is that different types of service accessibility investigations (e.g. spatial and social) can be combined to generate a holistic description of service accessibility. The first research strand challenges this assumption by demonstrating that the simultaneous examination of spatial and social service accessibility factors describes service accessibility better than combining spatial and social service accessibility research studies. (Jia & Xierali, 2015; Schultheis, 2014; Wang & Luo, 2005). This strand suggests that spatial and social accessibility should be studied together rather than conducting spatial and social research separately and combining it later.

The second strand of research challenges the assumption that the spatial and social are separable. It does this by demonstrating that subjective distance is a more accurate way of explaining whether a service is accessible. Subjective distance is a well understood concept in other fields. It captures the fact that whether a person will travel a given distance to use a service is mediated by how she perceives that distance (Lofti & Koohsair, 2009; Lundberg & Ekman, 1973; Scheiner & Holz-Rau, 2007; Springer, Kelder, & Hoelscher, 2006; Thériault, Rosiers, & Joerin, 2005; Tilt, Unfried, & Roca, 2007; von Wirth, Grêt-Regamey, & Stauffacher, 2015). For instance, although residents in a low-income community might be physically proximate to health care providers, some residents might perceive such providers as far more distant than they actually are (Hawthorne & Kwan, 2012). Subjective distance is located somewhere between the social and the spatial.

The introduction of subjective distance into service accessibility research challenges the first assumption of the user/type cross-section. It challenges the first assumption because

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the epistemological and ontological assumptions embedded in the service accessibility analytic framework.

subjective distance cannot be categorized as spatial or social. The spatial and social are not mutually exclusive if they must overlap to describe how subjective distance impacts accessibility.

The first research strand challenges the user/type cross-section's assumption that spatial and social service accessibility research can be conducted separately and later combined. The second research strand suggests that there are things relevant to service accessibility that straddle the user/type cross-section's spatial and social binary. These two strands of research suggest that the user/type cross-section may be predicated on false assumptions. However, both strands only implicitly challenge the saliency of the user/type cross-section and neither strand explicitly challenges the user/type cross-section's adequacy.

## **2.4. Conclusion**

In this chapter, I described the service accessibility analytic framework with a two by two by two matrix. Service and health care accessibility researchers frequently use the user/type cross-section of the matrix to frame their work. The user/type cross-section provides researchers with a parsimonious analytic framework to explore service accessibility. Despite its strengths, the user/type cross-section's salience depends on the validity of the two assumptions that I identified. Lastly, I identified two strands of service accessibility research that implicitly challenge the validity of the two user/type cross-section's assumptions.

In the next chapter, I examine the validity of the two assumptions of the user/type cross-section. I find that the two assumptions neither accord with how and why people use a service nor do these assumptions survive a critique rooted in the ontology of the things that mediate service accessibility. In light of these two facts, I develop and propose an alternate way of understanding service accessibility that accords with both the types of things that are relevant to service accessibility and how persons experience service accessibility.

## Chapter 3: Socio-Spatial Entanglement Theory

In this chapter, I show that the user/type cross-section does not offer an adequate way to understand service accessibility. In particular, the user/type cross-section does not account for the ways in which social and spatial service accessibility factors are entangled with each other and how these entanglements shape actual and potential user behavior.

Existing research describes how the user/type cross-section fails to capture the factors that mediate service accessibility (Hawthorne & Kwan, 2012; Jia & Xierali, 2015; Schultheis, 2014; Wang & Luo, 2005). This research attempts to explicitly invalidate the user/type cross-section and connect service accessibility research with the reality of service usage. Service accessibility research must also have an alternate method to investigate service accessibility. This method should build upon the user/type cross-section but also remedy the user/type cross-section's inability to describe or explain the why and how of service accessibility.

In this chapter, I undertake the project of explaining why the user/type cross-section is inadequate. The shortcoming is due to the user/type cross-section's inability to account for the entanglement of spatial and social service accessibility factors. I propose a theory of service accessibility that offers a way of understanding spatial and social service accessibility factor entanglement. I first present two problems that illuminate the practical inadequacy of the user/type cross-section. Second, I develop an ontological critique of the user/type cross-section that undermines the saliency of the user/type cross-section and suggests how service accessibility should be conceptualized. Lastly, I develop an alternate way of understanding service accessibility, socio-spatial entanglement theory that uses the insights that I generate from these this critique.

I connect this theory of service accessibility to the practice of service accessibility research via a service accessibility method grounded in socio-spatial entanglement theory. I develop this method in chapters four and five. My focus in this section is the development of why an alternate theory of service accessibility theory is needed and the development of socio-spatial entanglement theory.

### **3.1. A Practical Invalidation of the User/Type Cross-Section**

In this section, I present a practical argument against the user/type cross-section by posing two problems that challenge the assumptions that the user/type cross-section is predicated on. The first problem relates to how the meaning of distance varies *between* historical/technological moments. The second problem relates to how the meaning of distance varies *within* a historical/technological moment. These two problems invalidate the assumptions of the user/type cross-section by showing that the spatial and the social are, as a practical matter, always entangled with one another.

#### ***3.1.1. Problem 1: The Shifting Meaning of Distance between Historical/Technological Moments***

What matters in terms of service accessibility is not physical distance itself but rather how physical distance is understood and experienced in a specific historical/technological moment. Imagine that what service accessibility researchers were interested in was physical distance. If that was the case, California is just as accessible to New Yorkers as it was a century ago. Although California is still the same physical distance from New York, it is absurd to suggest that it is as accessible to today's New Yorker as it was to the New Yorker of 1916.

Unlike physical distance, the meaning of distance is not a spatial accessibility factor. Rather the meaning of distance is shaped by the complex interplays between spatial and social factors that exist in a historical/technological moment (Fisher, 1992; Harvey, 1990). Further, unlike physical distance, the meaning of distance changes over time as society changes. The meaning of distance is a mutable object that is the result of the entanglement of spatial and social factors.

Service accessibility researchers could untangle the spatial and the social by adding a clause to a given service accessibility study. This clause would state that the study's results are only applicable to a specific historical/technological moment. Based on this fact, one might conclude "problem solved"; spatial and social factors untangled. Spatial and social factors, however, are more entangled than that.

### ***3.1.2. Problem 2: The Shifting Meaning of Distance within Historical/Technological Moments***

The meaning of distance not only varies between historical/technological moments but also within a historical/technological moment. The variation of the meaning of distance within a historical/technological moment depends (1) on various social attributes of an individual and (2) the individual's access to a given technology (Hawthorne & Kwan, 2012; Schwanen et al., 2008; Tomer, 2011). The variation of the meaning of distance within a historical/technological moment dissolves the bright line distinction between spatial and social factors and exposes that spatial and social factors are entangled.

Assume that a researcher is studying the accessibility of specialty medical providers to residents of a city. The researcher operationalizes distance as the time it takes to travel from one location to another over a road network. She also qualifies her study as being applicable only to particular historical/technological moment. The researcher finds that specialty medical providers are unevenly distributed across the city and that certain populations have less access than others.

The researcher's findings describe the accessibility of specialty medical providers if the historical/technological moment clause untangles spatial and social factors. The historical/technological clause, however, does not (and cannot) untangle spatial and social factors because the meaning of distance varies within a historical/technologic moment. For instance, an individual's access to a technology (in this case a car) varies by class, social attributes, and across space thus impacting the meaning of distance. In the example above, the researchers will over- or under-estimate the extent to which specialty medical providers are accessible. A provider that is 15 minutes away by car is more accessible than a provider 30 minutes away so long as one has access to a car. If, however, the individual cannot access a car, then both clinics are equally inaccessible.

Changing the technological access assumption implicit in the measurement of physical distance does not remedy this problem. For instance, the researcher could assume that people could only bike along the existing road network. This approach might accurately model service accessibility for bikers but it would be incorrect for people who would use a car or who can't ride a bike or who take the bus. The instability of the meaning of

distance is not due to how researchers model distance. Rather, the instability of the meaning of distance is the result the entanglement of spatial and social factors.

The above discussion demonstrates how access to technology varies within a given historical/technological moment and how access to technology causes the meaning of distance to vary. Access to a given technology is but one reason why the meaning of distance varies in a given historical/technological moment. There are numerous other non-spatial factors that mediate the meaning of distance within a historical/technological moment ranging from resource availability to time availability to health to safety to gender.

The second problem exposes that spatial and social factors are unavoidably entangled. The first problem left open the possibility that researchers could qualify their accessibility studies to untangle the spatial and social. The second problem, however, closes the door on that solution. The second problem exposes the unavoidable entanglement of social and spatial service accessibility factors.

### **3.2. A Philosophical Invalidation of the User/Type Cross-Section**

In this section, I show that spatial and social service accessibility factors are *necessarily* entangled. My argument is based on an analysis of the ontology of accessibility factors using a Critical Realist (CR) framework. CR is a philosophical framework for understanding the world developed in the late 21<sup>st</sup> century that walks the line between positivism and constructivism by refocusing scientific inquiry on ontology. CR asserts that the world is composed of two different types of objects, social and natural. Using this framing, I demonstrate that social objects are *necessarily* entangled with other social objects. Lastly, I show that most service accessibility factors are social objects that are necessarily entangled.

#### ***3.2.1. Social and Natural Objects***

There are two types of objects in the world, social objects and natural objects (Bhaskar, 2013, 2014). The simplest distinction between natural and social objects is whether our understanding of the object alters what the object is (Archer, Bhaskar, Collier, Lawson, & Norrie, 1998; Danermark, Ekstrom, Jakobsen, & Karlsson, 2002; Lawson, 1997). A natural

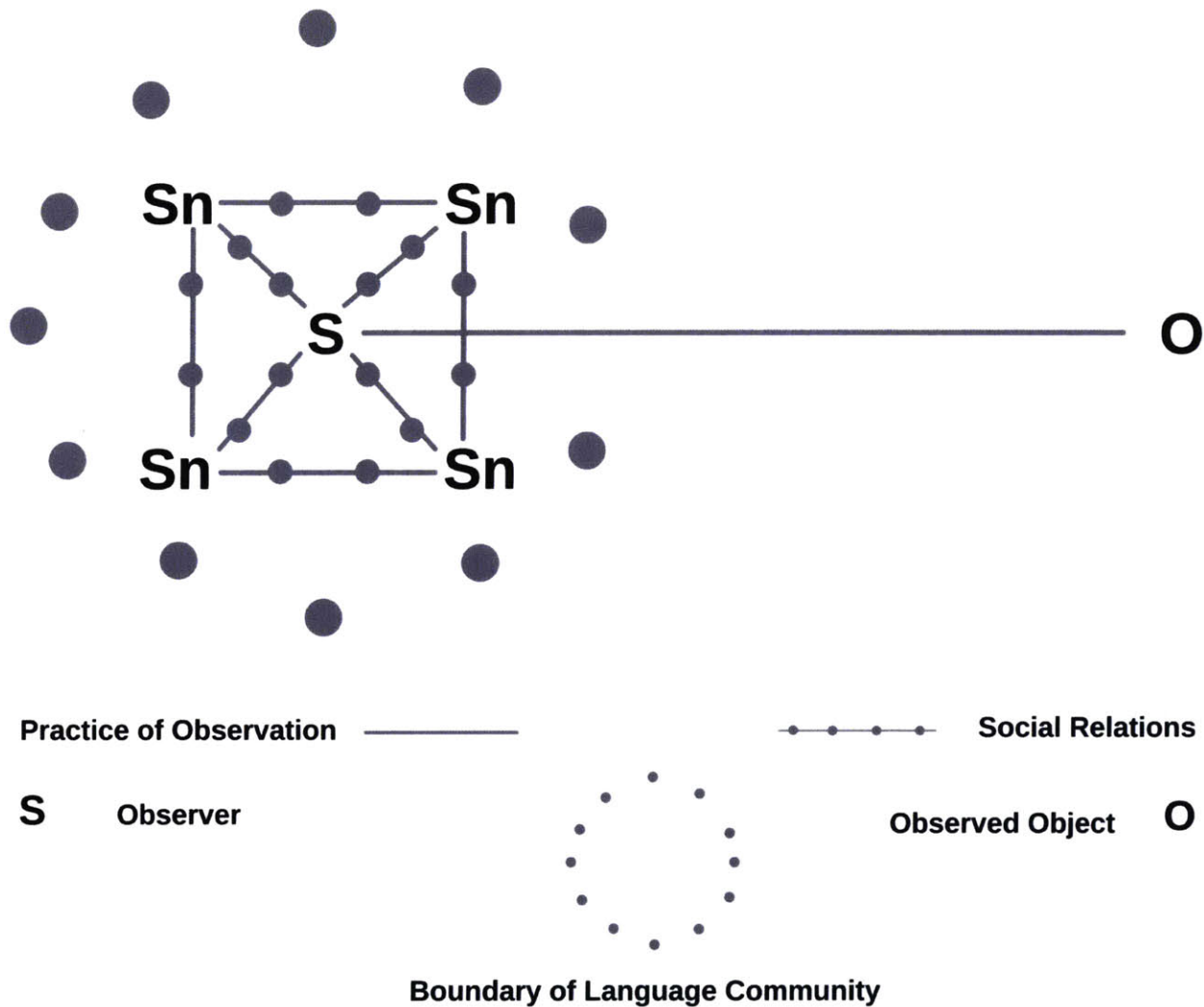
object's being does not change due to how the natural object is understood. In contrast, our understanding of a social object changes the social object. In this section, I expand on this basic explanation of natural and social objects and present a more formal and detailed definition of these two object types.

### **3.2.1.1. Natural Objects**

Natural objects are not altered by the process of being observed or by how people understand them. Peoples' *understanding* of a natural object can change. However, the natural object is itself *independent* of understandings of it. Regardless of the concepts we use to understand it, the natural object is itself unchanged. It is *concept independent* (Danermark et al., 2002).

The definition of natural objects speaks to a specific type of relationship between people and natural objects (Sayer, 2010). In *Figure 4*, I present a diagram that illustrates the relationship between an observer and the natural object.

**Figure 4.** A diagram of the relationship between a person and a natural object (adapted from Sayer (1992)).



On the left of the diagram, there are 5 people (“S” or “Sn”). One of these people observes the natural object. The person who observes the natural object is at the square’s center and is indicated with an “S”. The observer has social relationships (friendships, discussions, etc.) with some number of other people (“Sn”). These people comprise the square’s four corners and are indicated with a “Sn”.

The relationships between the various persons shape how the observer (“S”) understands things. The relationships between people are possible because the people are in a shared language community. This language community allows them to interact with and



influence each other. I indicate the language community in *Figure 4* with the dots around the square of people.

The social relationships between the observer (“S”) and other people (“Sn”) also partially determine/construct the observer. How the observer and other people understand partially determines who they are. This relationship of partial determination/construction is indicated by the dotted lines between the people in *Figure 4*.

The observer (“S”) is connected to the observed natural object (“O”) in a different fashion than she is to other people. Her connection to the natural object does not involve mutual determination/construction. The observer learns about the natural object via observation. However, she does not, nor can she, have a relationship with the natural object that impacts the natural object’s being.

The shape of the earth and peoples’ understanding of the earth’s shape illustrates the connection between observers and a natural object. Over time, humankind’s understanding of the earth’s shape has changed. At one time, the western scientific consensus was that the earth was flat. Subsequently, people discovered that the world was round. Subsequent to that, people discovered that the world was a spheroid.

The earth’s shape, however, did not change as peoples’ understandings of the earth’s shape changed. Imagine if our understanding of the earth’s shape changed the shape of the earth. Gravitational pull on people would change as too would space orbits. Tides would change. The earth’s geology and geography would change as the earth’s shape shifted. The effects of such changes aside, neither the mind nor the earth could cause such shifts in the earth’s shape unless our reality was radically different.

The relationship between the earth, the observer, and the scientific community can be described using *Figure 4*. In *Figure 4*, the relationship between the observer (“S”) and the earth (“O”) can be described with a solid line. The solid line between the observer and the earth indicates that the observer, through the practice of observation, learns about the earth. The meanings the observer attaches to the observations are co-created through relationships with other persons as indicated by the dotted lines between “S” and the

“Sn”s. However, these meanings are not co-created with the earth. The earth is not the type of object that engages in meaning construction. It is observable but its being is separate from the process of meaning determination/construction. The earth, like all natural objects, is *concept independent*.

### **3.2.1.2. Social Objects**

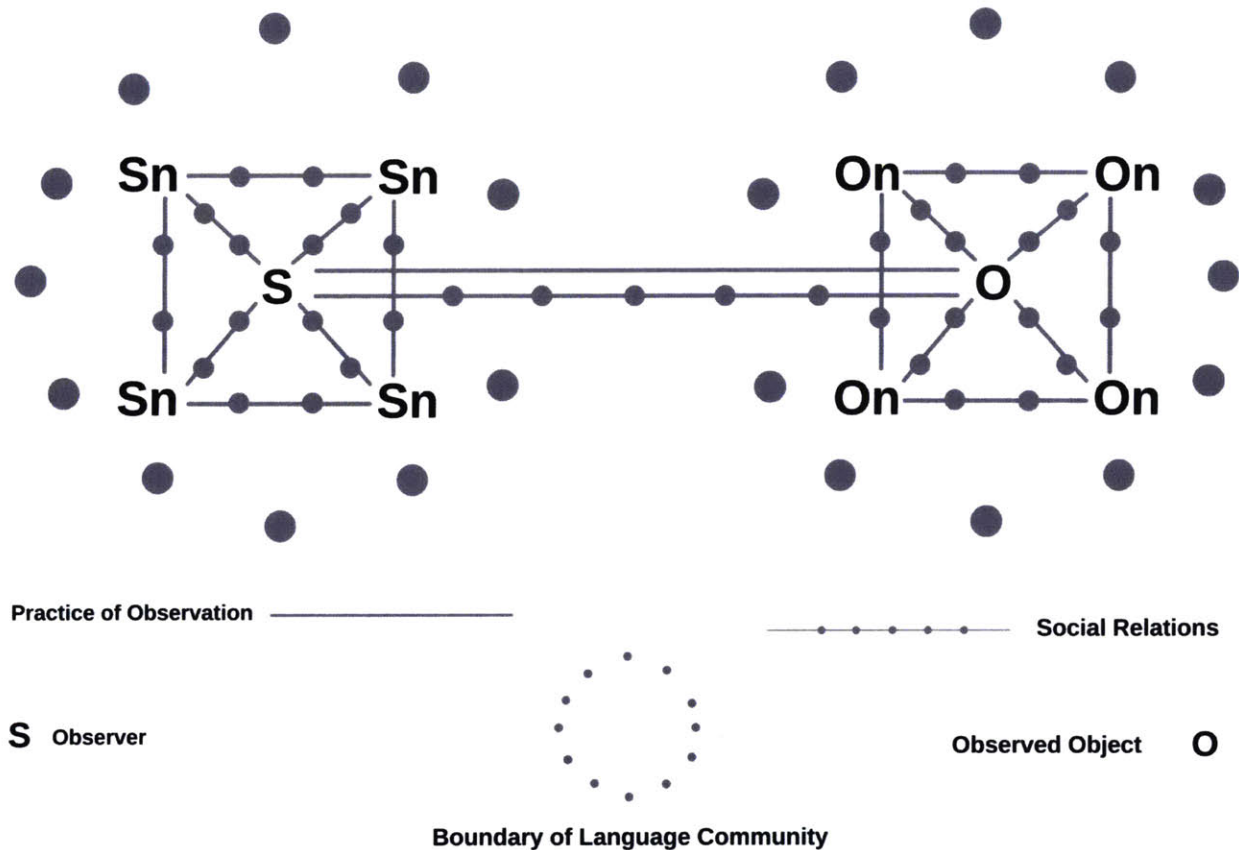
What if the observed object is not the earth but rather a person or social structure? In this case, the observed object, like the natural object, exists independently of how it is understood (Archer et al., 1998; Bhaskar, 2013, 2014; Collier, 1994; Lawson, 1997). For instance, you exist regardless of someone’s observation of and interpretation of your existence.

A person’s observation of you, in most cases, entails a relationship with you. That relationship influences how and what you know and who you are is shaped by how and what you know (Sayer, 2010). The observation also impacts who the observer is. The co-creation of meaning with the observer and other people impacts who you are. Your being, like all social objects, is simultaneously partially independent of this meaning and partially determined by it. Your being, unlike a natural object’s, is *concept dependent*.

In *Figure 5*, I present a diagram of the relationship between a person and a social object. That social objects are impacted but not determined by observation is indicated by the presence of a solid and dashed line between the observer (“S”) and the observed social object (“O”). The solid line, as it did in the relationship between the observer and the natural object, represents a practice of observation that does not impact the nature of the observed object. The dotted line connecting the observer and the observed object represents a relationship that changes the beings of the observer and observed.

Unlike in the case of natural objects, the observed social object is impacted by its relationships with other social objects. These other social objects are represented by the four “On”s around the observed social object. The observed social object and the observer are also impacted by the practice of observation.

**Figure 5.** A diagram of the relationship between a person and a social object (adapted from Sayer (1992)).



Social objects include many things other than persons. For instance, a legal system is a social object. If people within a legal system that permitted segregation understood that legal system as unjust, actors might change how segregation laws were applied or, alternatively, create new laws which would inhibit persons speaking or acting out against segregation. At the same time, how people understand the legal system does not completely determine/construct the legal system. For instance, regardless of peoples' beliefs that a legal system is unjust, what the legal system is will still be determined by its relationships with other structures, say the police, military or legislative body, and the material components that are part of the legal system.

A market is another example of a social object that is not a person. A market exists even if we have no understanding of it. However, a market's being is partially determined by how it is understood (i.e. by market participants, the research community, and society at

large).<sup>3</sup> For instance, if participants believe a market to be strong or struggling these beliefs can actually impact whether the market is in fact strong or weak.

### ***3.2.2. Entanglement is a Necessary Condition of Social Objects***

In the previous section, I explained that the difference between natural and social objects is whether their being is affected by how they are understood. In this section, I demonstrate why social objects are necessarily entangled with one another. In particular, I expand the subject/object diagram of social objects that I presented in the last section.

The observed natural object is neither involved in constructing the meaning of the observer nor is it impacted by how it is understood. There is a single relationship between the subject and the object, the practice of observation. The observer, via relationships with other social objects, creates the meaning of the observation. The natural object's meaning is socially defined but its being is not affected by this definition. It is not entangled with other social or natural objects because its being is independent of them.

Unlike in the case of the observed natural object, the observer of a social object constructs meaning *with* the observed social object. The beings of both the observer and the observed are impacted by this meaning. This co-construction of meaning entangles social objects with one another.

Although perhaps not through a direct relationship, all social objects in a language community are entangled via social relationships. These social relationships impact what social objects are by the process of meaning construction and understanding. Social objects are always entangled with other social objects and this entanglement flows necessarily from (1) the existence of relationships between social objects, (2) that these

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<sup>3</sup> Some may protest that there is no market without market participants. This position could be framed such that it challenges the assertion that the market has some independent existence. However, CR does not challenge the assertion that market participants are a necessary condition of markets. CR merely asserts that social structures such as markets are not reducible to the actions of individual market participants and that have some existence aside from the actions and understandings of market participants.

relationships involve the construction of meaning, and (3) that what a social object is impacted by these co-created meanings.

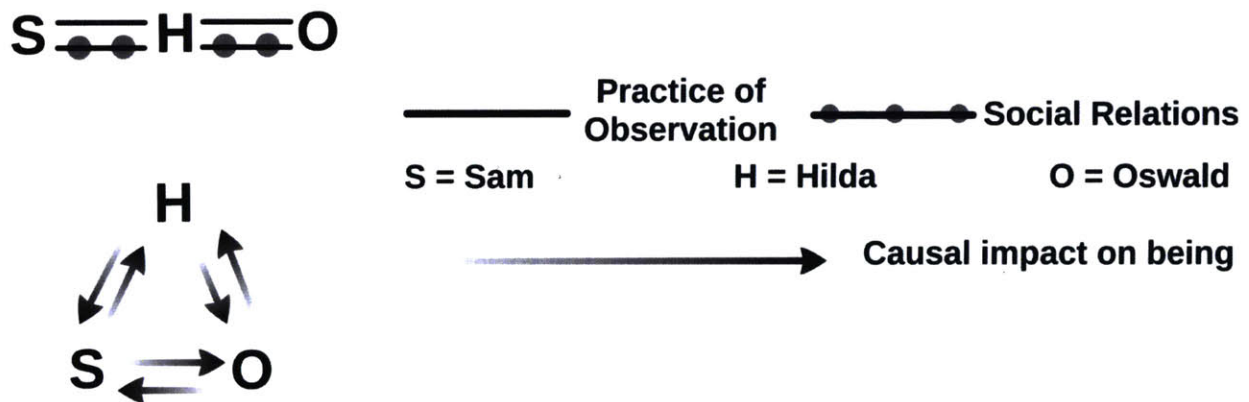
In *Figure 6*, I diagram the relationship between three social objects, Sam (S), Hilda (H), and Oswald (O). For purposes of illustration, I only include three social objects in *Figure 6*. I also simplified the diagram to illustrate a case where there is only one observer, Hilda.

**Figure 6.** A diagram of the relationships formed by Hilda's observation of Sam and Oswald.



In *Figure 7*, I diagram the entanglement of Sam, Hilda, and Oswald. *Figure 7* shows the way in which the social relationships of Sam, Hilda, and Oswald impact the beings of Sam, Hilda, and Oswald. In *Figure 7*, I indicate this impact using arrows. The arrow starts at the social object that causes the change and the arrow head points to the social object that is changed.

**Figure 7.** A diagram of the entanglement of Sam, Hilda, and Oswald.



Sam and Oswald are entangled despite the fact that there is no direct relationship between them. The reason for this entanglement is their relationships with Hilda. Their direct relationship with Hilda results in an indirect relationship between them.

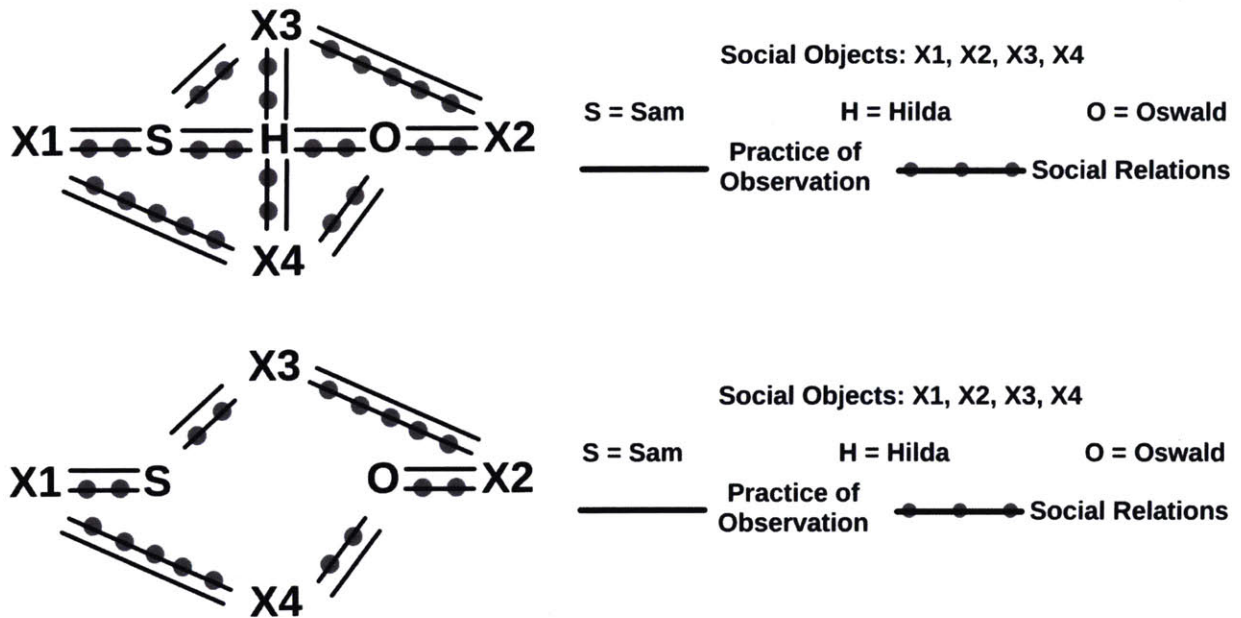
Sam's being is partially dependent on the meaning of it created by the relationship between him and Hilda. Similarly, Oswald's being is partially dependent on the meaning of it created by the relationship between him and Hilda. Lastly, Hilda's being is partially dependent on the meaning of it created by the relationship between her, Sam, and Oswald. Although there is no direct relationship between Sam and Oswald they are entangled with each other through Hilda. Both Sam and Oswald are involved in the creation of meaning which impacts who Hilda is and who Hilda is impacts who Sam and Oswald are. Sam and Oswald impact who each other are even though there is no direct relationship between Sam and Oswald.

There is the possibility of untangling the three social objects in the simple example that I depict in *Figure 7*. Specifically, Sam and Oswald would no longer be entangled if Hilda is removed from the example. The possibility of untangling social objects would undermine the proposition that social objects are necessarily entangled.

The possibility of untangling social objects suggested by the three social object example is the result of the example and not the actuality of entanglement. The web of entanglements between social objects in the real world is vast and dense. Indeed, the web of entanglement between social objects is so dense and vast that the disappearance of one social object from the web would have only a minimal effect on the entanglement of the remaining social objects.

Even a slight increase in the number of social objects and relationships increases density of entanglements. In the upper diagram in *Figure 8*, I present a diagram with seven social objects and one possible set of relationships between them. Unlike when Hilda was removed from the three social object example, the social objects that remain in the seven social object example are still entangled when Hilda is removed. In the lower diagram in *Figure 8*, I diagram the relationships between the social objects in the seven social object example without Hilda.

Figure 8. A diagram of the seven social object example with Hilda and without Hilda.



The social objects are still entangled after Hilda’s removal. The persistence of the entanglements in the face of Hilda’s removal demonstrates the resiliency of the web of entanglements. The web of entanglements is even more resilient with the thousands to millions of relationships that exist between social objects in an actual language community.

In *Table 1*, I summarize the entanglements in the two above-discussed examples with and without Hilda. This summary shows the increase in the number of entanglements when the relationship between additional social objects are considered. The columns are labelled for each social object in the given example. The rows indicate whether the relationship between one social object and another is direct or indirect. I list the social objects that the object is related to in each individual cell. In the column “Total”, I list the sum of the direct or indirect connections between social objects in each example.

**Table 1.** A table detailing the entanglements between social objects in the two examples with and without Hilda.

Connection	H	S	O	X <sub>1</sub>	X <sub>2</sub>	X <sub>3</sub>	X <sub>4</sub>	Total
<b>Example 1</b>								
Direct	S, O	H	H					2
Indirect	None	O	S					1
<b>Example 1 with Hilda removed</b>								
Direct	Removed	None	None					0
Indirect	Removed	None	None					0
<b>Example 2</b>								
Direct	S, O, X <sub>3</sub> , X <sub>4</sub>	H, X <sub>1</sub> , X <sub>3</sub>	H, X <sub>2</sub> , X <sub>4</sub>	S, X <sub>4</sub>	O, X <sub>3</sub>	H, S, X <sub>2</sub>	H, O, X <sub>1</sub>	20
Indirect	X <sub>1</sub> , X <sub>2</sub>	O, X <sub>2</sub> , X <sub>4</sub>	S, X <sub>1</sub> , X <sub>3</sub>	H, O, X <sub>2</sub> , X <sub>3</sub>	H, S, X <sub>1</sub> , X <sub>4</sub>	O, X <sub>1</sub> , X <sub>4</sub>	S, X <sub>2</sub> , X <sub>3</sub>	22
<b>Example 2 with Hilda removed</b>								
Direct	Removed	X <sub>1</sub> , X <sub>3</sub>	X <sub>2</sub> , X <sub>4</sub>	S, X <sub>4</sub>	O, X <sub>3</sub>	S, X <sub>2</sub>	O, X <sub>1</sub>	12
Indirect	Removed	O, X <sub>2</sub> , X <sub>4</sub>	S, X <sub>1</sub> , X <sub>3</sub>	O, X <sub>2</sub> , X <sub>3</sub>	S, X <sub>1</sub> , X <sub>4</sub>	O, X <sub>1</sub> , X <sub>4</sub>	S, X <sub>2</sub> , X <sub>3</sub>	18

The effect of removing Hilda on the entanglement of the objects is markedly different in the three person and seven person examples. The removal of Hilda untangles Sam and Oswald in the three person example. The removal of Hilda does not untangle any of the social objects in the seven person example. Actual webs of entanglement are even more



resilient than the entanglements in the seven person example and social objects in a language community are necessarily entangled.

In the previous section, I defined social and natural objects. In this section, I demonstrated that (1) social objects are entangled and (2) that these entanglements are extremely resilient in actuality. In the next section, I examine the types of objects that spatial and social service accessibility factors are.

### ***3.2.3. Most Spatial and Social Service Accessibility Factors are Social Objects***

Service accessibility researchers often misidentify spatial accessibility factors as natural objects. Some spatial service accessibility factors are natural objects. However, the majority of spatial and social service accessibility factors are social objects. This misidentification is often the result of assuming that the object type of the proxy measure is the same as the object type of the factor that the proxy measures. For instance, many researchers examine the spatial relationship, whether geometric or friction-based, between users and the service delivery location as a proxy for the meaning of distance. Although physical distance is a natural object, the meaning of distance is a social object.

It is important to correctly classify the object types of service accessibility factors. This is important because, if the service accessibility factor is a social object, the factor is necessarily entangled with other social objects in the complex web of meaning and co-construction. If, however, the service accessibility factor is a natural object, then the factor is not entangled with social objects and its being is unchanged by how it is understood. The service accessibility factors that should interest researchers, including the meaning of distance, are social objects. These service accessibility factors are necessarily entangled.

### ***3.2.4. Factor Entanglement Invalidates the User/Type Cross-Section***

The user-type cross-section is incorrect because the assumptions that it is predicated on are invalid. I explained, in previous sections, that the service accessibility factors that researchers should be interested in are social objects. Social objects are necessarily

entangled. In this section, I explain how service accessibility factor entanglement invalidates the two assumptions upon which the user/type cross-section rests.

The user-type cross-section is predicated on two assumptions as I discussed in Chapter 2. The first assumption is that the types of things that mediate service usage can be divided into the two exclusive categories of the spatial and social. The second assumption is that the cross-section's four quadrants can be combined to fully describe service accessibility.

Service accessibility factors are social objects that are necessarily entangled. Accessibility factors cannot be understood in isolation because of entanglement. Separating service accessibility factors into the spatial and social is invalid. The separation overlooks the ways that service accessibility factors are related and the ways in which they co-construct the beings of each other. For this reason, the first assumption of the user/type cross-section is invalid.

The second assumption turns on whether the quadrants of the cross-section combine to fully describe service accessibility. The quadrants neither describe service accessibility nor can they be combined to describe service accessibility. Understanding service accessibility requires understanding how factors are entangled. A conceptualization of service accessibility that turns on categorization of service accessibility factors by type does not offer a means to understand how factors are entangled.

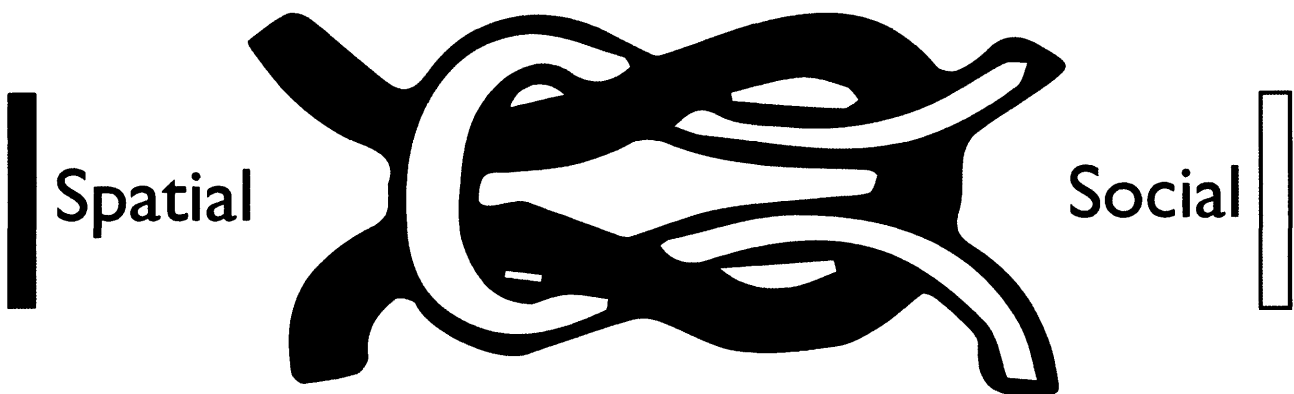
Both assumptions of the user/type cross-section are invalid. Service accessibility factors are not separable into the spatial and social. Additionally, the four quadrants of the user-type cross-section do not, when taken together, describe service accessibility because service accessibility factors cannot be understood in isolation.

### **3.3. Entanglement Requires an Understanding of Interactions**

I explained how both of the user/type cross-section's assumptions are invalid in the previous section. In this section, I argue that researchers must understand the entanglements between service accessibility factors to understand service accessibility. Understanding these entanglements requires that researchers examine both service accessibility factors themselves and how they interact with each other.

The metaphor of a knot usefully explains how the user/type cross-section fails to conceptualize the entanglement of spatial and social service accessibility factors. Imagine that you are looking at a knot tied using two ropes. One rope is spatial service accessibility factors. The other rope is social service accessibility factors. The ropes are tied together to form a knot. The knot is the concept of service accessibility. I provide a visualization of this knot in *Figure 9*.

**Figure 9.** A diagram of the service accessibility knot.



Researchers who frame their work with the user/type cross-section implicitly, and perhaps unintentionally, assert that the knot can be understood by understanding the two ropes used to tie it. The user/type cross-section reduces the knot to the ropes that compose. This assertion is incorrect despite the fact that the knot is indeed created by the spatial and social service accessibility ropes.

When two ropes interact, a knot is not necessarily formed. For instance, simply laying two ropes next to each other does not create a knot. This shows that the ropes that make a knot are necessary but not sufficient aspects of the knot.

The reduction of service accessibility into spatial and the social factors denies the existence and import of the interactions and phenomena the factor entanglement create. Spatial and social service accessibility factors are necessary parts of service accessibility. However, spatial and social service accessibility factors can never, when viewed in isolation, be an adequate explanation of the service accessibility problem. What is needed

is a service accessibility theory that allows researchers to understand the entanglements between service accessibility factors. In the next section, I propose a service accessibility theory that conceptualizes the existence and importance of service accessibility factor entanglement.

### **3.4. Socio-Spatial Entanglement Theory**

In this section, I first explain how the entanglement of spatial and social service accessibility factors is encompassed by the notion of socio-spatial interactions. Second, I explain that spatial and social service accessibility factors cannot be examined in isolation because they are entangled. Spatial and social factors must be examined in an integrated fashion. Lastly, I propose a theory of service accessibility that conceptualizes both factor entanglement and the need to understand factors in an integrated fashion.

A theory of service accessibility must account for the entanglement of social and spatial factors. Social and spatial factors interact directly and indirectly with one another. The interaction of social and spatial service accessibility factors is like friction caused by interlocking the two ropes in the service accessibility knot metaphor.

Service accessibility theory must also account for the fact that although social and spatial service accessibility factors are entangled, the factors themselves are not completely described by their entanglement. Social and spatial service accessibility factors have a being that is partially independent of the meanings ascribed to them. Examining social and spatial factors in an integrated fashion captures the fact that factors must also be understood both in and of themselves and as being entangled. Returning to the knot metaphor, the ropes that are used to tie a knot cannot be understood simply by describing how they interact to form the knot yet nor can the knot be described without describing the ropes that compose it.

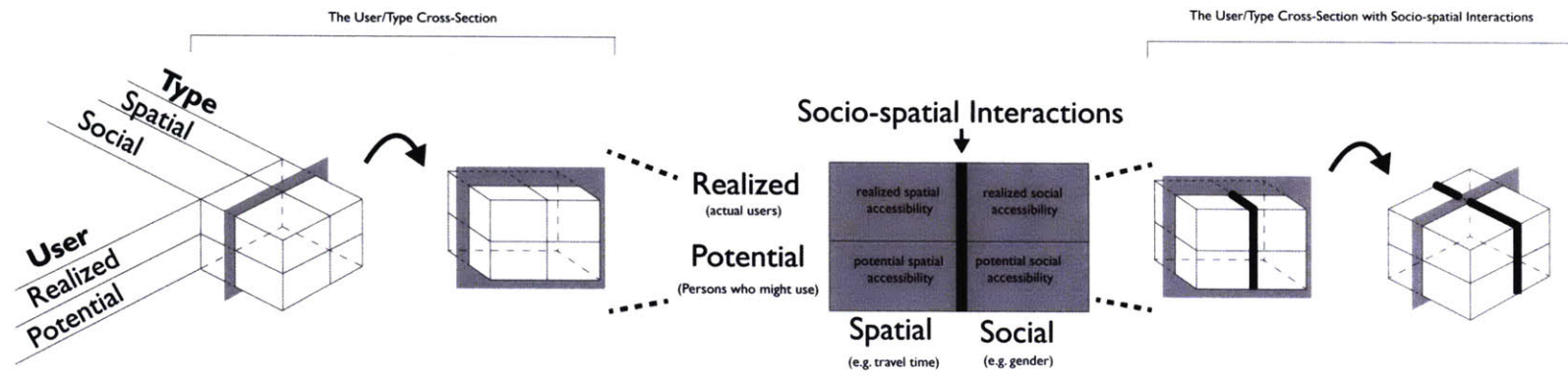
A theory of service accessibility must be able to do two things in light of these facts. First, it must be able to theorize socio-spatial interactions. Second, it must examine service accessibility factors in an integrated fashion. I use the visualization of the user/type cross-section presented in the previous chapter to propose how service accessibility theory could accomplish these two things.

In *Figure 10*, I present a diagram that shows how the user/type cross-section could be altered to account for entanglement while also examining service accessibility factors in an integrated fashion.

Service accessibility factor interactions occur in the space that separates spatial and social service accessibility research. This additional space can be added to the visualization of the user/type cross-section. I bold the line separating spatial and social service accessibility research to indicate the interactions between spatial and social factors.

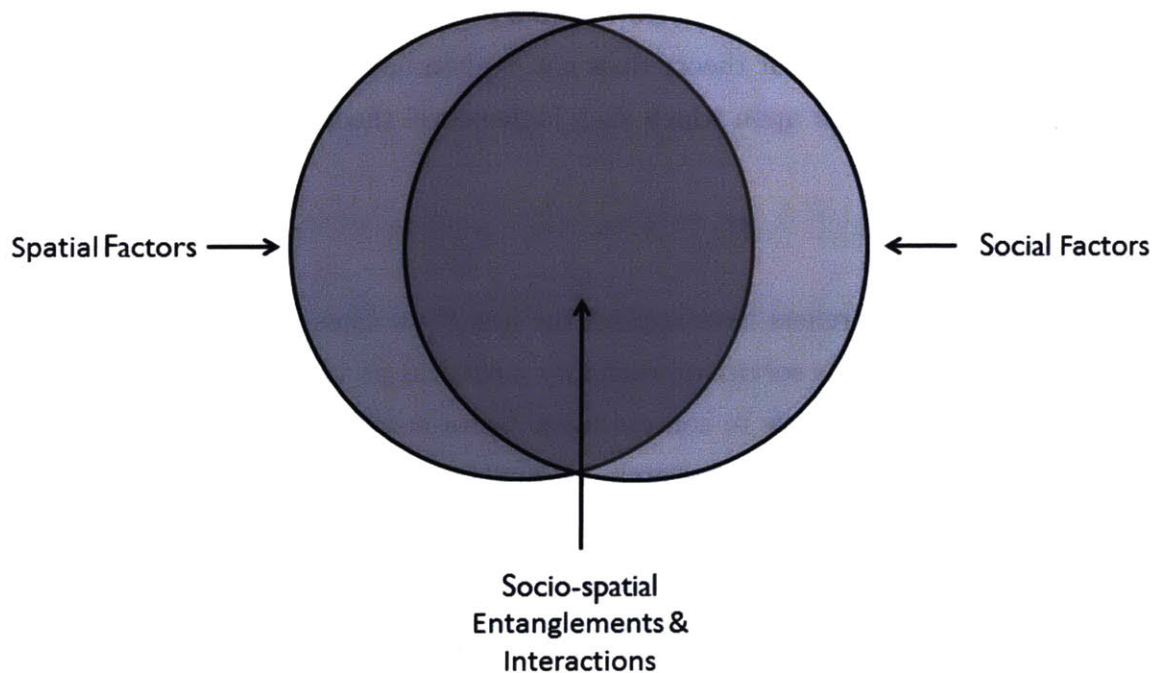
The second thing service accessibility theory must do is examine spatial and social factors in an integrated fashion. Again looking at *Figure 10* this would mean that service accessibility research needs to examine all the areas in the same horizontal plane simultaneously. This includes the new area that represents service accessibility factor interactions.

Figure 10. A diagram of the user/type cross-section with socio-spatial interactions.



*Figure 11* is potentially subject to problematic interpretations. In *Figure 11*, I present an alternate visualization of socio-spatial entanglement theory that is less prone to misinterpretation. It visually highlights the importance of socio-spatial interactions and visually suggests the necessary interconnectedness of social and spatial service accessibility factors.

**Figure 11.** A diagram of socio-spatial entanglement theory.



Lastly, note that socio-spatial entanglement theory is a foundational theory for the service accessibility field. Theory exists at multiple-scale and no single theory is able to address issues at all relevant scales (Collier, 1994; Danermark et al., 2002; Sayer, 2010). For instance, a theory about service accessibility measurement could be viewed as a mid-level theory. It addresses a specific issue about service accessibility but does not engage other questions related to service accessibility. The goal of researchers should be to generate theories that explain phenomena in a consistent and justified manner across the scales of

theories. Socio-spatial entanglement theory is a low-level or fundamental theory of service accessibility.

The current state of the service accessibility domain presents a useful example of the problems caused by inconsistent and unjustified theories. Current service accessibility theory builds upon the service accessibility analytic framework which in turn informs theories about how researchers can measure service accessibility. The service accessibility analytic framework, however, as I have demonstrated, mischaracterizes the nature and relevance of the objects of study in service accessibility.

Socio-spatial entanglement theory offers the service accessibility field a theory that explains the types of objects that are relevant to service accessibility and why this is the case. Socio-spatial entanglement theory does not explain how these objects can be studied but it provides a foundation upon which such higher-level theories of measurement can be built.

### **3.5. Conclusion**

Service accessibility researchers have applied the user/type cross-section to generate understandings of numerous service accessibility empirical problems. The user/type cross-section, however, is neither able to conceptualize factor entanglement nor acknowledge the necessity of conducting integrated research, i.e. analyzing spatial and social factors and entanglements simultaneously. Socio-spatial entanglement theory proposes an alternate way to understand service accessibility research by (1) placing entanglements at the center of understanding service accessibility and (2) by recognizing the necessity of conducting service accessibility research in an integrated fashion.

In this chapter, I first presented two problems that demonstrated the practical entanglement of social and spatial service accessibility factors. I then conducted an ontological critique of the user/type cross-section informed by the CR philosophical framework. I showed, in the process of conducting this critique, that spatial and social service accessibility factors are not just practically but necessarily entangled.



In the next chapter, I develop a method that allows researchers to investigate service accessibility, the interactive, integrated, socio-spatial accessibility (I2S2A) method. The I2S2A method is consistent with socio-spatial entanglement theory. It provides researchers with the means (1) to understand how spatial and social accessibility factor entanglements impact realized service accessibility and (2) to simultaneously examine spatial and social service accessibility factors and entanglements. The I2S2A method also serves as a bridge between the foundational theorization of service accessibility developed in this research and the practice of empirical service accessibility research.

## Chapter 4: Explaining Socio-Spatial Entanglements

Service accessibility research methods are not consistent with the ontology and epistemology of service accessibility factors. This fact results in service accessibility methods that only appear to offer concrete approaches to service accessibility research. These research methods are, upon closer inspection, inconsistent with what service accessibility factors are and how researchers can explain them.<sup>4</sup> In this chapter, I begin to correct this problem by explaining how researchers can learn about service accessibility factors in light of the ontology of service accessibility factors.

In the previous chapter, I argued that service accessibility factors are entangled with one another due to the nature of their beings. Factor entanglement required the development of a new way to theorize service accessibility, namely, socio-spatial entanglement theory. Socio-spatial entanglement also necessitates a reevaluation of service accessibility methods. This reevaluation should include an analysis of how researchers can learn about entangled factors and whether current methods can explain entangled factors. If current methods cannot explain entangled service accessibility factors, the reevaluation should lead to the formulation of a service accessibility methodology that can explain entangled factors.

In this chapter, I explain how researchers can learn about service accessibility factors. I first describe the two conditions that allow researchers to infer causation from empirical observation. Second, I explain how research that involves entangled service accessibility factors always violates one of these conditions. Third, I argue that a non-traditional form of inference, retrodution, allows researchers to explain entangled factors. Fourth, I demonstrate that retroductive inference demands an iterative, non-linear, reflexive, mixed-

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<sup>4</sup> Outside of the service accessibility field, some traditional travel demand models that incorporate user-specific convenience measures might be able to better describe service accessibility than current methods used in quantitative service accessibility research. However, quantitative model needs to be connected to the ontology and epistemology of service accessibility factors. My objective in this dissertation is not to evaluate the descriptive accuracy of quantitative models but to reorient the service accessibility towards deeper considerations of the ontological and epistemological alignment between the objects of study in service accessibility and the methods used to research them.

method research method. Lastly, I show that an iterative, non-linear, and reflexive, mixed-method research method combined with retroductive inference enables researchers to generate explanations of entangled service accessibility factors.

#### 4.1. Inferring Causation from Observation

In this section, I show why traditional modes of scientific inference cannot generate causal explanations from empirical regularities related to service accessibility due to the nature of entangled factors. This is because entangled service accessibility factors do not permit the equation of observed empirical regularities with causation.

Researchers must be able to isolate the object of investigation from other objects and forces to be able to infer causation from empirical regularities (Collier, 1994; Danermark et al., 2002; Wynn & Williams, 2012). When a researcher successfully isolates the object of inquiry she creates a closed system. Observing an object in a closed system allows her to infer causation from empirical regularities (Lawson, 1997).<sup>5</sup>

Creating closed systems in empirical research has been profoundly successful. It has led to the identification of numerous law-like causal relationships and practical inventions in natural and engineering sciences (Sayer, 2010). In fact, the use of closed systems and inference from empirical regularities has been so successful that it has become the *sine qua non* of good scientific research (Cleland, 2001; Gigerenzer & Porter, 1989; Lawson, 1997; Sayer, 2010).

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<sup>5</sup> The conditions of closure are fuzzier in practice. In practice, researchers are generally not able to create perfectly closed systems. System closure, however, can be approximated such that causation can be inferred from empirical regularities (Collier, 1994). To create a perfectly closed system the researcher would first have to know in advance every possible thing that could impact the object or relationship under study AND be able to isolate the object or relationship under study perfectly from these things. There are few circumstances, regardless of experimental ingenuity and effort, under which both the conditions of internal and external closure are perfectly met. Researchers, however, are often able to create experiments with sufficient closure to be able to produce practically useful and accurate inferences from observed empirical regularities when studying natural objects (Sayer, 2010).

The application of this research paradigm to service accessibility, however, begs a question. Can this approach, inference from empirical regularities, produce similar causal explanations given the nature of service accessibility factors? The answer to this question turns on whether experiments involving entangled accessibility factors can be conducted in a closed system.

There are two conditions of system closure (Bhaskar, 2013; Collier, 1994; Sayer, 2010). The first condition is that there is internal closure. Internal closure means that the object(s) under study do not themselves somehow change during observation such that they behave differently (Bhaskar, 2014). The second condition is external closure. External closure requires that outside forces do not change how the object(s) under study behaves or the nature of the object (Bhaskar, 2014). When these two conditions are met, a researcher can be certain that only the objects of interest are at work and not intervening objects or forces (Bhaskar, 2014). Causation cannot be validly inferred from observed empirical regularities if either the external or internal conditions of system closure are violated (Sayer, 2010).

#### ***4.1.1. Entangled Service Accessibility Factors Violate the Conditions Required to Infer Causation from Empirical Regularities***

System closure depends both on experimental ingenuity and the type of object under study. A failure to produce a closed system due to lack of experimental ingenuity can often be remedied by a better experimental apparatus or research design. There is, however, no remedy if the inability to obtain a system closure is due to the type of object studied. In that instance, the inability to obtain system closure is unavoidable (Bache, 2003; Lawson, 1997).

It is impossible to conduct closed system research with entangled service accessibility factors. The impossibility of conducting closed system research involving entangled factors is due to their being. Social objects, like entangled service accessibility factors, are impacted by how they are understood. This change violates the condition of internal closure because the beings of social objects, like entangled service accessibility factors, are constantly changing as how they are understood changes (Bhaskar, 2014; Lawson, 1997). In other words, service accessibility researchers' inability to infer causation from empirical

regularities is not due to flaws in experimental design or implementation. Rather, it is due to the fact that the very nature of service accessibility factors which violate the condition of internal closure.

## **4.2. Explaining Entangled Service Accessibility Factors with Retroduction**

Researchers cannot infer causation from observed empirical regularities related to entangled service accessibility factors. Service accessibility researchers, however, can generate causal explanations about service accessibility factors although these explanations use a different mode of inference from observation. These explanations will not be law-like predictions based on deductions from empirical regularities. They will also not be inductive inferences from empirical regularities. Rather, researchers can use observation to retroductively infer what types of things and relationships must exist to explain the observed phenomena.

In this section, I first introduce readers to retroduction. Next, I explain how researchers can use retroduction to infer explanations of entangled service accessibility factors from observation. In subsequent sections, I outline the specifics of a retroductive method of inquiry.

### ***4.3.1. Retroductive Inference from Observation***

Researchers can explain entangled factors using retroductive inference. Retroductive inference is the process of positing what must exist to explain observed phenomena (Archer et al., 1998; Downward & Mearman, 2006; Sayer, 2010; Zachariadis, Scott, & Barrett, 2013). Retroduction preserves the relevancy of empirics to research by reaffirming the centrality of observation to knowing (Archer et al., 1998; Collier, 1994). At the same time, retroduction departs from the traditional forms of inference when researching social objects especially in its focus on explaining what must be as opposed to predicting future events (Bhaskar, 2014; Lawson, 1997).

Retroductive inference focuses on what objects and causal mechanisms must exist to cause the observed phenomena rather than predicting or logically establishing what will occur (Bhaskar, 2013, 2014; Downward & Mearman, 2006; Lawson, 1997; Sayer, 2010). There

are three aspects of retroduction that should be noted. First, the directionality of retroduction is opposite to induction and deduction. Retroduction requires that the researcher infer back from observations to what exists rather than inferring what will happen in future cases. Second, retroduction is ontologically focused, i.e. it infers what must exist, as opposed to focusing on how we know that things will occur (Meyer & Lunnary, 2013; Zachariadis et al., 2013). Third, retroductive inferences are, unlike deductive inferences, subject to revision and not logically necessary (Sayer, 2000, 2004).

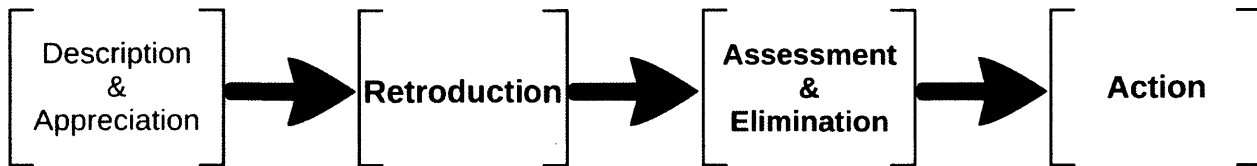
#### ***4.3.2. The Iterative, Non-Linear, and Reflexive Nature of the Retroductive Research Process***

Lawson (1997) likens the retroductive process to how a tracker moves between observation of the environment to explanations of what could have caused the observed phenomena (i.e. broken branches, footprints, scat, etc.). The tracker makes new observations as she tracks and uses the additional evidence to refine her explanations which in turn is followed by gathering more evidence which in turn is followed further explanation refinement and so on. This process eventually stops once the tracker settles on what she believes is the most likely explanation for the observed things. The movement between observation and explanation that allows the tracker to revise explanations, devise new explanations, and eventually settle on a best explanation is the process of retroduction.

Researchers have offered various formal descriptions of the retroductive process (Danermark et al., 2002; Zachariadis et al., 2013). Zachariadis et al. (2013) propose a four-phase, retroductive research process. The four phases are: (1) description and appreciation, (2) retroduction, (3) assessment and elimination, and (4) action. During the description and appreciation phase, the researcher identifies and collects empirical data relevant to the phenomena under study. During the second research phase, retroduction, the researcher hypothesizes a set of possible objects and causal mechanisms which could explain the empirical observations generated during the description and appreciation phase. Next, during the assessment and elimination phase, the researcher evaluates the possible explanations generated in the previous phase and reduces the set of possible explanations. Lastly, the researcher shares the knowledge generated in the research project with the relevant actors. A researcher moves from one phase to the next and may, upon

completing the sequence of all four phases, iterate again through the phases to refine her findings. In *Figure 12*, I provide a visualization of Zachariadis et al.'s (2013) four-phase, retroductive research process.

**Figure 12.** A diagram of Zachariadis et al.'s (2013) four phase retroductive research process.



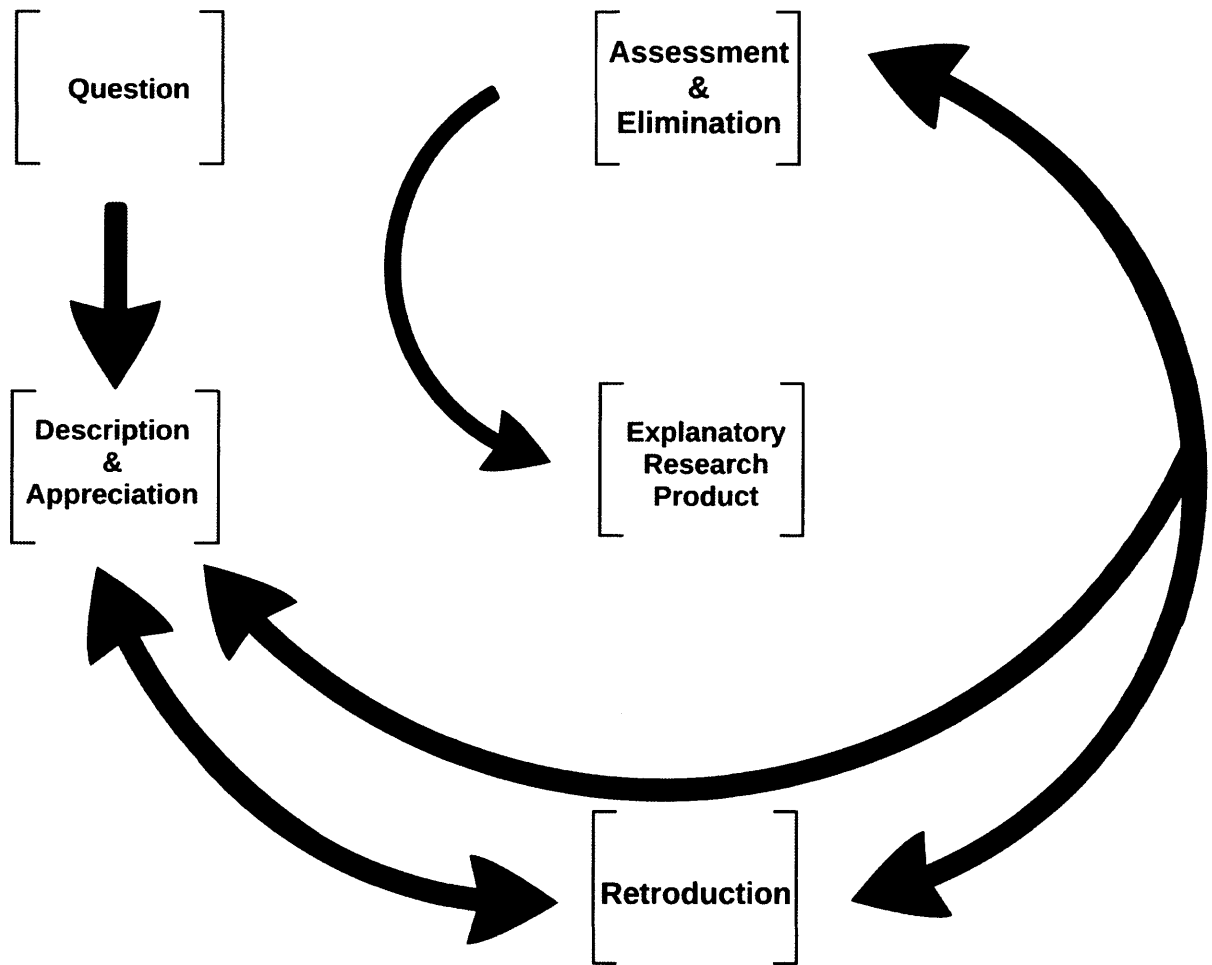
Current attempts to describe the retroductive research process are, however, problematic. These models describe the retroductive process as a step-wise method of inquiry (Danermark et al., 2002; Meyer & Lunary, 2013; Zachariadis et al., 2013). As Lawson's (1997) tracker metaphor clarifies, retroduction requires that the researcher move back and forth between observation and explanation in order to settle on the best explanation.

Zachariadis et al.'s (2013) four phase retroductive research process provides a useful outline of the retroductive research process. It does not, however, capture the between phase iteration and reflexivity of the retroductive research process. In *Figure 13*, I present a graphic of a retroductive research practice that reimagines Zachariadis et al. (2013) process as non-linear, iterative, and reflexive.<sup>6</sup> This conceptualization of the retroductive research process draws heavily upon the work of Zachariadis et al. (2013). However, it improves and clarifies Zachariadis et al.'s (2013) conceptualization of the retroductive research process by introducing the concepts of reflexivity, non-linearity, and iteration.

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<sup>6</sup> Instead of calling the output of the retroductive process "action", I chose to call it "Explanatory Research Product."

**Figure 13.** A diagram of a non-linear, reflexive, and iterative conceptualization of the retroductive research process.



### ***4.3.3. Mixed-Methods and Retroduction***

In the previous section, I explained that researchers can study entangled service accessibility using retroductive inference. I then showed that the retroductive research process requires an iterative, non-linear, and reflexive method of inquiry. In this section, I argue that retroduction also requires that the researcher employ a mixed-method research method.

Mixed-method research is particularly well-suited to retroductive research (Danermark et al., 2002; Downward & Mearman, 2006; Sayer, 2010; Wynn & Williams, 2012; Zachariadis et al., 2013). It is well suited to retroductive inference because it provides the researcher with the broadest possible set of data from which to infer the objects and causal



mechanisms that could have caused the observed phenomena. The types of information that a researcher can create from quantitative and qualitative methods are both different and, in their difference, complimentary (Adcock, 2001; Danermark et al., 2002; Downward & Mearman, 2006; McEvoy & Richards, 2006; Mingers, 2006).

Combining quantitative and qualitative research methods in a single research methodology affords researchers with more material from which to reproduce the *whats* and *whys* of entangled accessibility factors. Quantitative methods allow researchers to develop taxonomic categories based on observed empirical regularities and outliers (Meyer & Lunnary, 2013; Sayer, 2010). Since entangled service accessibility factors always exist in open systems, causation cannot be deduced from these regularities. However, the empirical regularities can be used to bound the area of inquiry (Bache, 2003; Sayer, 2010).

Once the area of inquiry is bounded, the researcher uses qualitative methods to develop a contextual understanding of how factors are entangled.<sup>7</sup> Qualitative data affords researchers the ability to examine how entangled factors act and interact in specific contexts (Clegg, 2005; Sayer, 1997). This contextual information can then be used to either refine additional quantitative bounding or to produce a final research product.

Although a substantial literature exists on mixed-methods, existing mixed-methods strategies are ill-suited to reproduction. In particular, mixed-method research methodologies embrace a stepwise approach that uses quantitative and qualitative methods sequentially (Creswell & Clark, 2007; Lieberman, 2005; Teddlie & Tashakkori, 2009). A step-wise approach does not support retroductive inference. It fails because it does not support the iterative, non-linear, and reflexive nature of retroductive research practice (Bache, 2003; Downward & Mearman, 2007; McEvoy & Richards, 2006; Mingers, 2005; Modell, 2009). However, a mixed-method research approach to study entangled service accessibility factors could support retroductive inference provided that it eschews a step-wise mixed-methods research strategy.

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<sup>7</sup> Quantitative data is typically used to bound retroductive research (Sayer, 2010). However, some researchers bound studies with qualitative research (Zachariadis et al., 2013).

## 4.4. Conclusion

In this chapter, I presented general ideas about inference, open and closed systems and retrodution. Specifically, I argued that researchers are only able to infer causation from observed empirical regularities when they create a closed system. Experiments involving entangled service accessibility factors can never be closed due to the ontology of accessibility factors. No amount of ingenuity on the part of the researcher can create closed system experiments that involve entangled factors.

Due to the impossibility of obtaining system closure, deductive inference cannot be used to understand *how* and *why* observed empirical regularities occurred in experiments involving entangled service accessibility factors. However, retroductive inference can produce explanations of entangled factors. Using retrodution, the researcher attempts to explain the objects and causal mechanisms that must exist to have caused the observed phenomena.

Researchers can research and learn about the causal relationships of entangled service accessibility factors using retroductive inference. Conducting such an inquiry, however, requires that researchers discard commitments to the relevancy of deduction in relation to service accessibility research and acknowledge that service accessibility factors are, in fact, a different kind of object that demands a different type of inquiry.

The study of entangled factors using retrodution also requires that a new mix-method accessibility research method is developed that is iterative, non-linear, and reflexive. In the next chapter, I propose a mixed-method, retroductive research method for service accessibility research. The method connects service accessibility research method with the underlying nature of service accessibility factors and in so doing reconnects accessibility research to the experience of service accessibility. The method also is a bridge between the theory of socio-spatial entanglements and the practice of service accessibility research.

## Chapter 5: The Interactive, Integrated, Socio-Spatial Accessibility Method

Service accessibility research currently fails to recognize the importance of socio-spatial entanglements. It does not offer a way to empirically explain the ways in which the spatial is unavoidably social and the social is unavoidably spatial. Researchers' failure to examine socio-spatial entanglements disconnects service accessibility research from the lived experience of service accessibility.<sup>8</sup> A method that enables the empirical investigation of socio-spatial entanglements could connect service accessibility research to the actuality of service accessibility by bridging socio-spatial entanglement theory and the practice of service accessibility research. It could thus ground practice in theory.

The insights I developed in the preceding chapters inform the method that I propose in this chapter. In particular, the service accessibility method I develop incorporates socio-spatial entanglement theory and the ways researchers can learn about entangled factors. I summarize the key points developed in previous chapters below.

In Chapter 3, I showed that accessibility factors are entangled. I proposed that socio-spatial entanglement theory is a more justified way to theorize service accessibility. Socio-spatial entanglement theory conceptualizes service accessibility as being determined by (1) spatial and social factors and (2) socio-spatial entanglements.

In the Chapter 4, I delineated how researchers can explain service accessibility factors. I showed that traditional modes of inference are ineffective at explaining service accessibility factors because they always exist in open systems. Instead of induction or deduction, researchers could use retroduction to explain how entangled service accessibility factors impact service usage. Next, I argued that a service accessibility method should use both quantitative and qualitative data in an iterative, non-linear, and

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<sup>8</sup> Some notable exceptions to this are space-time accessibility studies (e.g. Kwan, 1999; Schwanen et al., 2008) and relatively recent studies that examine, albeit not framed as such, the meaning of distance for specific populations (Barona & Blaschke, 2015; Hawthorne & Kwan, 2012, 2013). However, these exceptions focus on how the meaning of distance varies between subpopulations and only hint at what causes these variations.

reflexive research process. Lastly, I suggested that the four-phase retroductive research process proposed by Zachariadis et al. (2013) could be applied to service accessibility research if its linear process was altered and it explicitly used quantitative and qualitative data.

Based on these insights, a new accessibility method is needed that (1) is able to simultaneously examine the social and spatial accessibility factors and (2) that is able to explain how entangled service accessibility factors interact. This method should use retroduction, via an iterative, non-linear and reflexive process, to explain how factors and factor entanglements shape service accessibility. In order to be able to accomplish this, the method must employ a mixed-method research strategy.

In this chapter, I develop a realized service accessibility methodology, the integrated, interactive socio-spatial accessibility (I2S2A) method. The I2S2A method is able to simultaneously examine social and spatial factors and to examine socio-spatial entanglements. The methodology produces knowledge in a manner that is responsive to and appropriate for the types of things that service accessibility research seeks to understand.

## **5.1. The I2S2A Method**

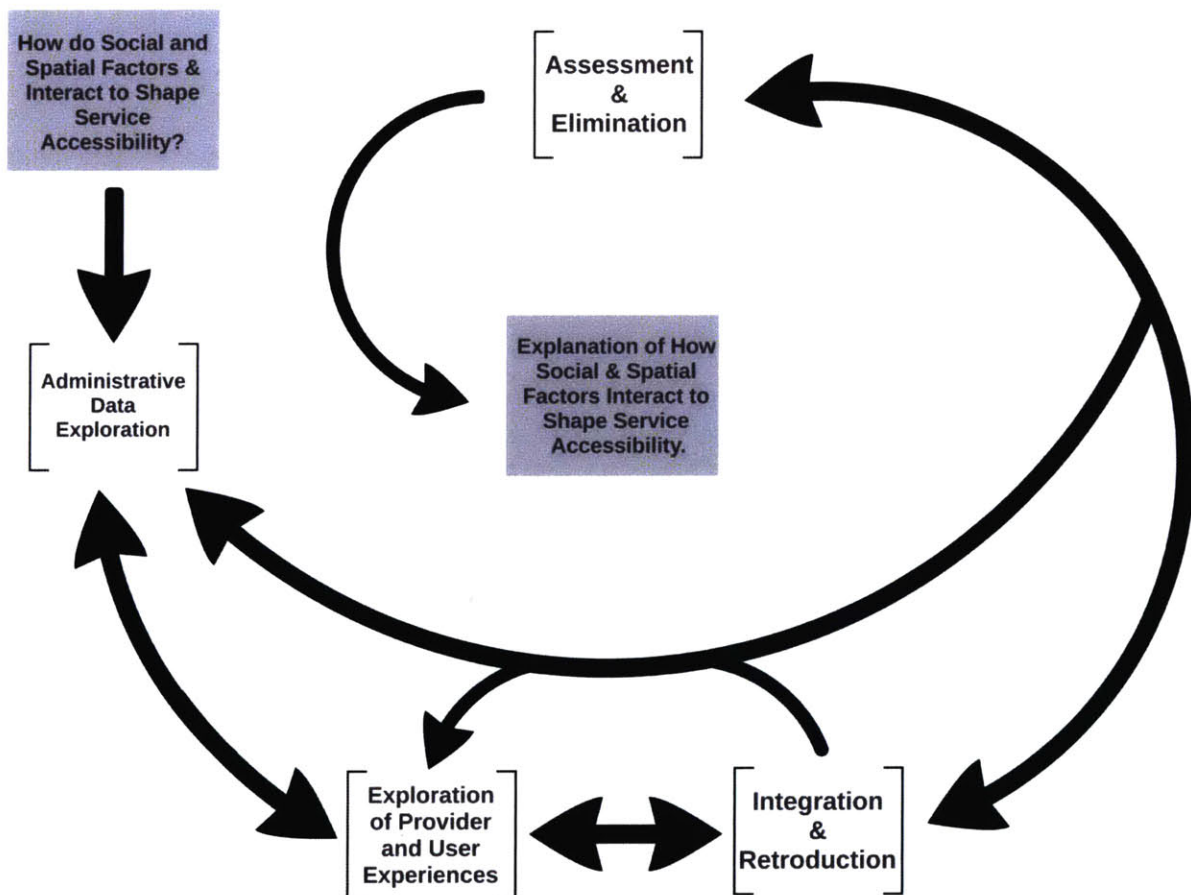
The I2S2A method addresses the process and mode of inference needed to explain entangled factors. The I2S2A method is designed to take advantage of the specific types of empirical data that are relevant to service accessibility. In particular, the I2S2A method leverages quantitative spatial, demographic, and administrative and qualitative service user experiential data to explain, via retroduction, service usage. In addition to leveraging quantitative and qualitative data, the I2S2A method situates the information generation process in an iterative, non-linear, and reflexive process of empirical inquiry that results in an explanatory research product grounded in a fundamental theory of what types of objects service accessibility research is concerned with and how researchers can come to know these objects.

The I2S2A method is centered on a retroductive inquiry process and acknowledges the non-linear, iterative and reflexive nature of the research process. The method builds upon

the retroductive research process proposed by Zachariadis et al. (2013). The first phase is the Description and Appreciation Phase. The second phase is the Retroduction Phase. The third phase is the Assessment and Elimination Phase.

I present a high-level overview of the I2S2A method in *Figure 14*. This overview highlights the reflexivity, non-linearity and iterative nature of the I2S2A method. While the overview highlights the reflexivity, non-linearity, and iterative nature of the I2S2A method, the level of detail only provides researchers with the roughest guide for conducting realized service accessibility research using the I2S2A method.

**Figure 14.** An overview diagram of the I2S2A method.



In *Figure 15*, I present a detailed diagram of the I2S2A method. The diagram identifies the activities within the research phases and parts of the I2S2A method. The clarification of the within-phase activities provides researchers with the necessary guidance to conduct concrete retroductive realized service accessibility research. I uncurled the overview of the I2S2A method that I presented in *Figure 15* and disaggregated the various research phases and parts into sets of research activities. Although *Figure 15* depicts the I2S2A method in a linear fashion, this presentation is only to increase legibility. The non-linear, reflexive and iterative movement between the phases and parts is indicated by the flow lines to the right of the individual phases. The iterative movement within a phase or part is indicated with flow lines between activities.

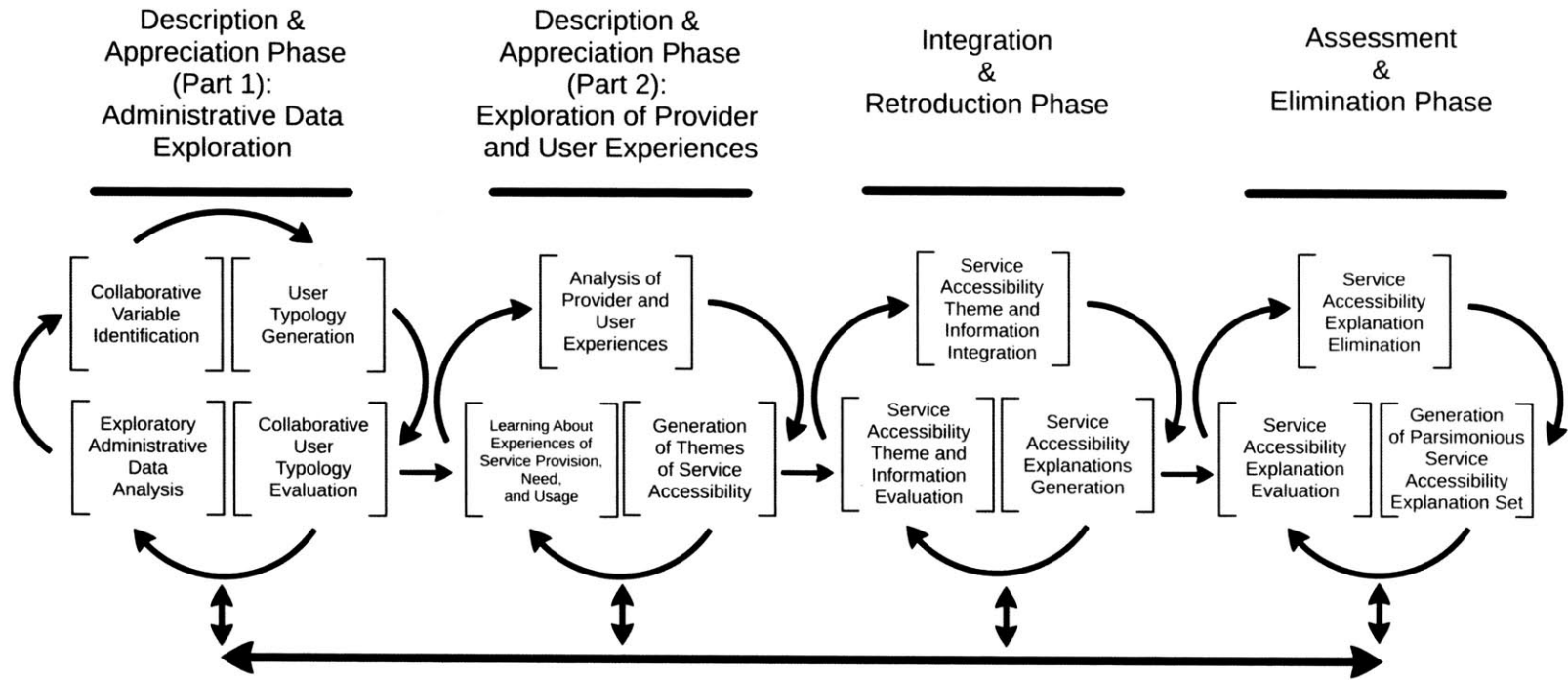


Figure 15. A detailed diagram of the I2S2A method.

In the following sections, I detail the I2S2A method’s parts and phases. I also explain what actions the researcher should take during each activity of the phases and parts.

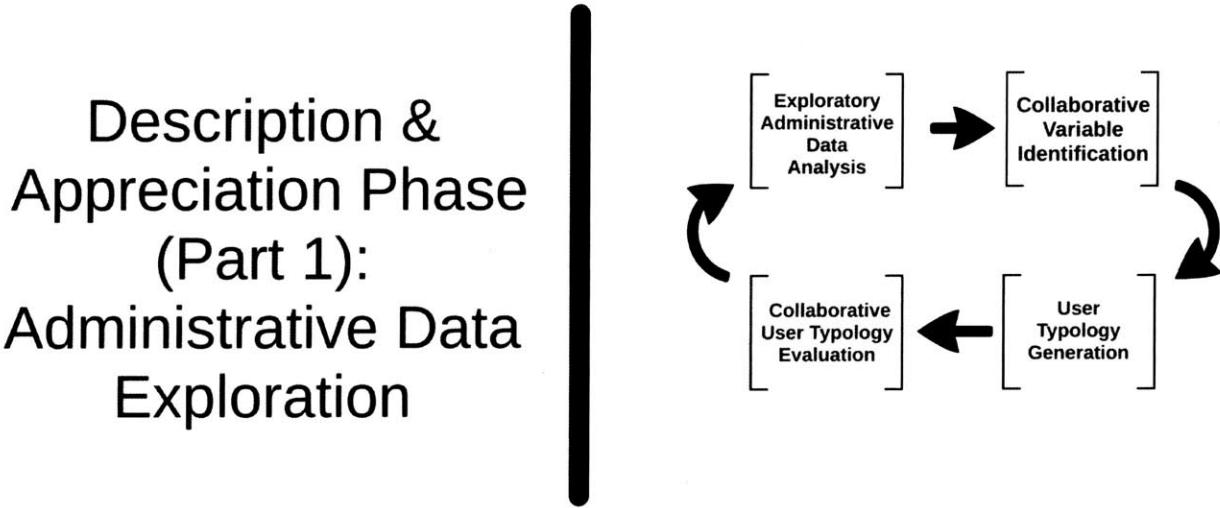
**5.1.1. Phase 1: Description and Appreciation**

The first phase of the I2S2A method is the Description and Appreciation Phase. During this phase, the researcher identifies service usage patterns with quantitative and qualitative data. The Description and Appreciation Phase has a quantitative part and a qualitative part. I describe the two parts of the Description and Appreciation Phase in the following sub-sections.

**5.1.1.1. Part 1 of Phase I: Administrative Data Exploration**

The first part of the Description and Appreciation Phase is the Administrative Data Exploration Part. This part is composed of four activities, Exploratory Data Analysis, Collaborative Variable Identification, Client Typology Generation, and Collaborative Client Typology Evaluation. In *Figure 16*, I present a diagram of the Administrative Data Exploration Part.

**Figure 16.** A diagram of the Administrative Data Exploration Part of the Description and Appreciation Phase.



The first activity is the Exploratory Administrative Data Analysis Activity. During this activity, the researcher summarizes and describes administrative data to identify interesting and or unexpected patterns related to service usage. Next, in the Collaborative



Variable Identification Activity, the researcher identifies the variables to study further with the agency who owns the administrative data. The collaborative aspect of this activity grounds this activity with local knowledge.

The third activity is the User Typology Generation Activity. The researcher uses the variables identified in the previous activity and reduces the dimensionality of data set in this activity. The reduction of the data via typology generation is necessary due to the size of most administrative data sets. It is also a useful summarization of the data that has the potential to facilitate the identification of unexpected patterns of the data. Depending on the types of variables of interest, the typology generation might involve using such statistical techniques as principal components analysis or hierarchical cluster analysis.

Lastly, in the Collaborative User Typology Evaluation Activity, the researcher and the agency evaluate the user typologies to determine whether they are plausible and or conform to the agency's understandings of their user population. The fourth activity further grounds the output of this part in the local knowledge possessed by service providers. These four activities may need to be repeated several times. The researcher should iterate through these activities until she creates a typology that captures the types of persons who use the service.

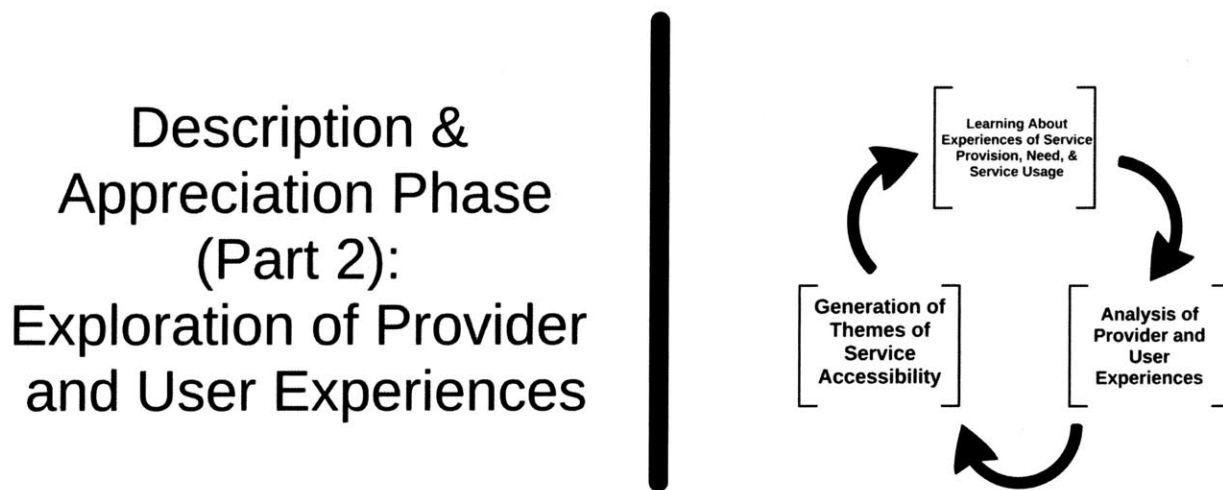
Other domains within the broader accessibility field might suggest more additional quantitative methods to identify socio-spatial entanglements of possible interest. For instance, the transportation modelling domain has developed several statistical and modelling methods to measure how travel demand and usage is mediated by spatial and social factors (Ben-Akiva & Lerman, 1985). Looking to other accessibility domains could be particularly useful as the service accessibility domain currently lacks a sufficient understanding of the factors and socio-spatial entanglements that impact service usage. My goal in this research is to outline a possible methodological approach to service accessibility research. I believe that the I2S2A method can be further refined to better explain service accessibility assuming that the methodologies used are consistent with the ontology and epistemology of service accessibility.

### 5.1.1.2. Part 2 of Phase I: Exploration of Provider and Client Experiences

The second part of the Description and Appreciation Phase is the Exploration of Provider and User Experiences Part. During the Exploration of Provider and User Experiences Part, the researcher collects qualitative data related to the factors and patterns identified in the Exploration of Administrative Data Part. The goal of this part is to develop a deeper description of service accessibility factors in the contexts within which they exist and operate.

This part may involve a further exploration of the previously generated typologies. The researcher, however, should also be critical of the typologies as they may not be causal groupings. Due to factor entanglement and observation in an open system, there is no logical reason why the generated typologies reflect difference in why people use a service although, at the same time, it is unlikely that we would see those patterns in the data for no reason. This part is composed of three activities, (1) Learning about Experiences of Service Provision, Need, and Service Usage, (2) Analysis of Provider and User Experiences, and (3) Generation of Themes of Service Accessibility. I present a diagram of the Exploration of Provider and User Experiences Part of the Description and Appreciation Phase in *Figure 17*.

**Figure 17.** A diagram of the Exploration of Provider and User Experiences Part of the Description and Appreciation Phase.



In the first activity, Learning about Experiences of Service Provision, Need, & Service Usage, the researcher collects experiences of service providers and users. The goal of data collection is to produce a deeper understanding of how factors operate in context as opposed to collecting data to generalize to the larger population of service users. Data is collected either through client interviews or participant observation. In all likelihood, if the researcher uses interviews, the researcher will use a purposive sample for user interviews and a key informant sampling for providers. Regardless of the specific data collection method used, data should be collected in such a fashion that allows the researcher to use the data to interrogate the typologies that are the output of the Administrative Data Exploration Part.

The second activity in this part is the Analysis of Provider and User Experiences. The specific method the researcher should use to analyze the data will depend upon the type of data collected during the previous activity. For instance, using a Grounded Theory approach might be appropriate if the researcher conducted interviews during the previous activity but this analysis approach would be inappropriate if participant observation was the researcher's primary method of data collection.

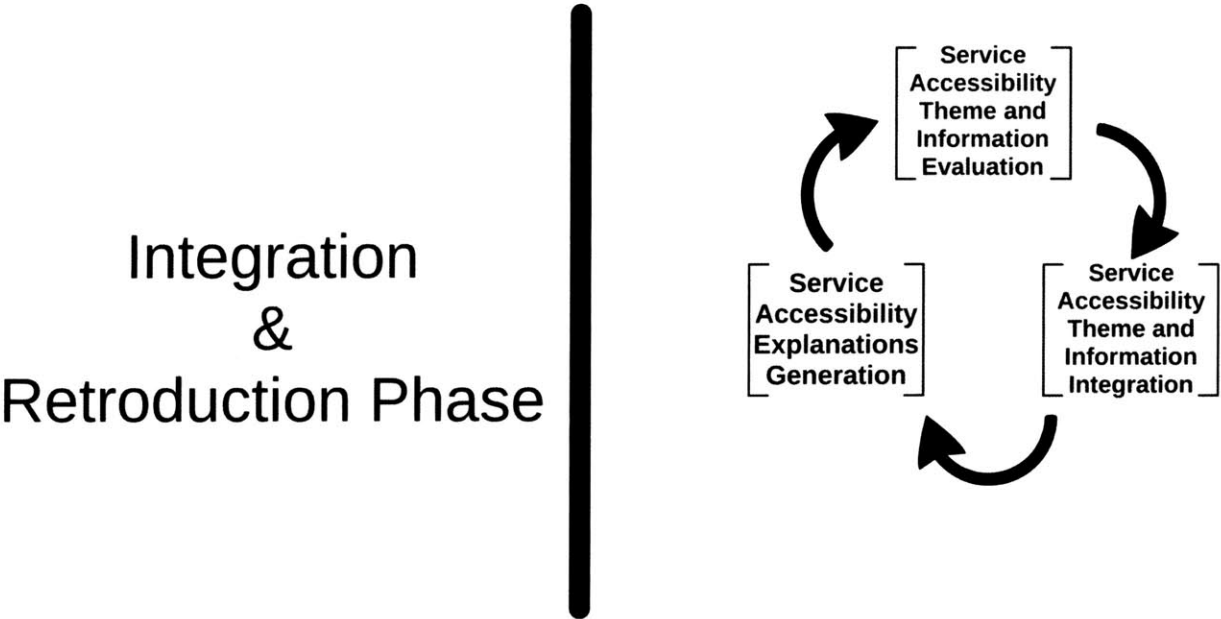
In the third activity of this part, Generation of Themes of Service Accessibility, the researcher abstracts from the qualitative data to themes of accessibility. These abstractions can be at multiple scales. The researcher's goal in this part is not to abstract to such a high level that she is left with only one theme but rather to generate a set of possible themes which capture how factors and entanglements operate in context.

### ***5.1.2. Phase 2: Integration and Retrodution***

The second phase of the I2S2A method is the Integration and Retrodution Phase. This phase consists of three activities; Service Accessibility Theme Evaluation, Service Accessibility Theme and Information Integration, and Service Accessibility Explanations Generation. These three activities, using the outputs of the two parts of the Description and Appreciation Phase, develop explanations for *why* and *how* a service is used. The researcher uses the various data to construct a coherent descriptive narrative of one or more processes of realized service accessibility or, phrased differently, construct a narrative that creates "meaningful totalities out of scattered events" (Ricoeur, 1982). To

accomplish this, the researcher first integrates the data produced during the two parts of the Description and Appreciation and then retroduce explanations of how service accessibility factors and entanglements mediate realized service accessibility. I present a diagram of the Integration and Retroduction Phase in *Figure 18*.

**Figure 18.** A diagram of Integration and Retroduction Phase.



The first activity of the Integration and Retroduction phase is the Service Accessibility Theme and Information Evaluation Activity. During this activity, the researcher evaluates the set of service accessibility themes and quantitative information developed in the previous phase. The goal of the evaluation is to identify what themes and information are most important to service usage.

The second activity in this phase is the Service Accessibility Theme and Information Integration Activity. During this activity, the researcher integrates the various themes into a coherent account of what factors underlie service usage. An analogy helps make this process clearer. Accessibility themes are similar to chapters in a book. During this activity, the researcher is ordering and integrating these chapters into a set of possible coherent stories. For instance, a realized service accessibility theme might be access to financial resources to travel and another might be the role of time flexibility and availability. During this activity, the research integrates these two themes by locating them within a

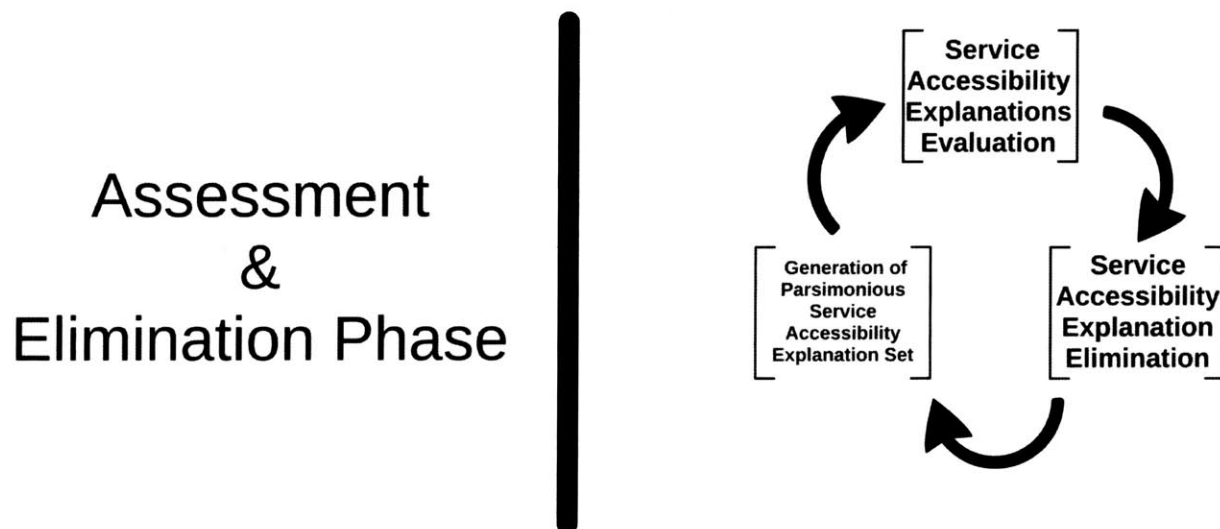
larger narrative of service usage that showed the interconnection and interactions between these two themes.

The third activity is the Service Accessibility Explanations Generation Activity. During this activity, the researcher explains how the identified descriptions of realized service accessibility came to be. The goal of these explanations is not to produce a predictive accounting of service usage but rather to highlight how various causal mechanisms are activated and, under what circumstances, certain results tend to occur. This activity is about brain storming explanations as opposed to evaluating the results of the brain storming. The researcher evaluates these explanations and excludes some of them in the next phase.

### ***5.1.3. Phase 3: Assessment & Elimination***

In the last phase, the Assessment and Elimination Phase, the researcher evaluates explanations generated during the Integration and Retrodution Phase. She then eliminates competing explanations with the aim of settling on a parsimonious set of explanations. I present a diagram of the Assessment and Elimination Phase in *Figure 19*.

**Figure 19.** A diagram of Assessment and Elimination Phase.



The first activity of this part is the Service Accessibility Explanations Evaluation Activity. During this activity, the researcher evaluates each of the competing explanations using

two criteria. First, explanations should enable practical action. Second, explanations should be theoretically justified.

The second activity of this phase is the Service Accessibility Explanation Elimination Activity. During this activity, the researcher eliminates explanations based on the assessments conducted in the previous process.

The third and final activity in this phase is the Generation of a Parsimonious Service Accessibility Explanation Set Activity. In this activity, the researcher stops eliminating explanations. In some cases, this might result in a single service accessibility explanation. In other instances, the researcher might settle on a set of service accessibility explanations. This set might be reduced as the researcher iterates again through this phase or the set might be the most parsimonious set of service accessibility explanations possible.

## **5.2. Conclusion**

In this chapter, I proposed a concrete mixed-method, retroductive research method for realized service accessibility research, the interactive, integrated socio-spatial accessibility (I2S2A) method. The I2S2A method brings together socio-spatial entanglement theory with how we can learn about service accessibility factors and entanglements. The I2S2A method is an empirical mixed-method realized service accessibility research methodology which can generate explanations of the entangled factors that shape service usage. This method provides service accessibility researchers with a concrete iterative, non-linear, and reflexive method to generate explanations of service usage. Lastly, the I2S2A method serves as a bridge between socio-spatial entanglement theory and the practice of realized service accessibility research by grounding realized service accessibility research practice in the ontology and epistemology of service accessibility.

In the next chapters, I detail the application of the I2S2A method to the realized accessibility of civil legal services provided by three clinics of the Legal Services Center of Harvard Law School. This application is a “proof of concept” and ground-truths the theoretical and methodological components of this dissertation.

## Chapter 6: Civil Legal Service Realized Accessibility

Obtaining civil legal services continues to be a pressing issue for lower income households. Only a small fraction of legally needy low income households are able to obtain civil legal services despite the prevalence of civil legal issues amongst this population (American Bar Association, 1994; Call, 2014; Denise, 1998; Engler, 2010; Johnson, 1978; Schultheis, 2014). The World Justice Project found that among the thirty countries examined with economic characteristics similar to the United States, the United States ranked twenty ninth out of thirty for accessibility of civil legal services. Only the United Arab Emirates had less accessible civil legal services (World Justice Project, 2015). Despite the documented need for increased civil legal services, legal practitioners, community organizations, and government actors struggle to increase the availability of civil legal services for lower income households.

Lack of access to civil legal services impacts whether lower income households are able to protect and vindicate their rights through the legal system. In the aggregate, lack of access also threatens the legitimacy of the rule of law in American democracy (Sweet, 1998). Chief Justice Ronald George of the California Supreme Court eloquently made this point,

*“If the motto “and justice for all” becomes “and justice for those who can afford it,” we threaten the very underpinnings of our social contract.”*  
(George, 2001)

Researchers have documented the lack of access and explained the complex set of economic, historical, political, and social conditions that affect the accessibility of civil legal services at the macro-scale (Cahn & Cahn, 1964; Johnson, 1978; Legal Services Corporation, 2009; Shepard, 2007). Macro-scale studies have supported interventions to increase accessibility at the federal and state levels (Johnson & Viviano, 2002). However, macro-level explanations of civil legal service accessibility are of limited use to direct service providers who operate at the local and individual-scale.

Researchers have developed increasingly nuanced methods for *describing* civil legal service accessibility at the individual scale and for identifying accessibility gaps (Blacksell, 1990;

Economides et al., 1986; Patel et al., 2008; Sandbach, 2004; Schultheis, 2014). These advances in describing individual-scale accessibility, however, have not been accompanied by an ability to *explain* individual-scale accessibility.

Civil legal service providers need both descriptions and explanations to design interventions to increase civil legal service accessibility. A description of accessibility gaps alone cannot inform effective interventions. Providers need to know why these gaps occur so that interventions target the underlying causes of a lack of accessibility. Absent explanations of access to civil legal services, interventions focus on mitigating factors that correlate with, but are not necessarily causally related to, accessibility.

I explain the realized accessibility of the civil legal services provided by LSC-HLS in this section. Specifically, I explain how and why people use civil legal services by understanding the socio-spatial entanglements that underlie service usage. I only look at realized users and not potential users of LSC-HLS's services. This substantive focus is supported by the service accessibility literature although it unavoidably limits the types of explanations that can be generated.

## **6.1. Understanding Realized Service Accessibility: Socio-Spatial Entanglement Theory**

In this section, I briefly restate the user/type cross-section that most researchers use to understand the accessibility of civil legal services. I then outline the contours of socio-spatial entanglement theory that I discussed in detail in Chapter 3. I also highlight how socio-spatial entanglement theory allows for a deeper understanding of how and why people use civil legal services.

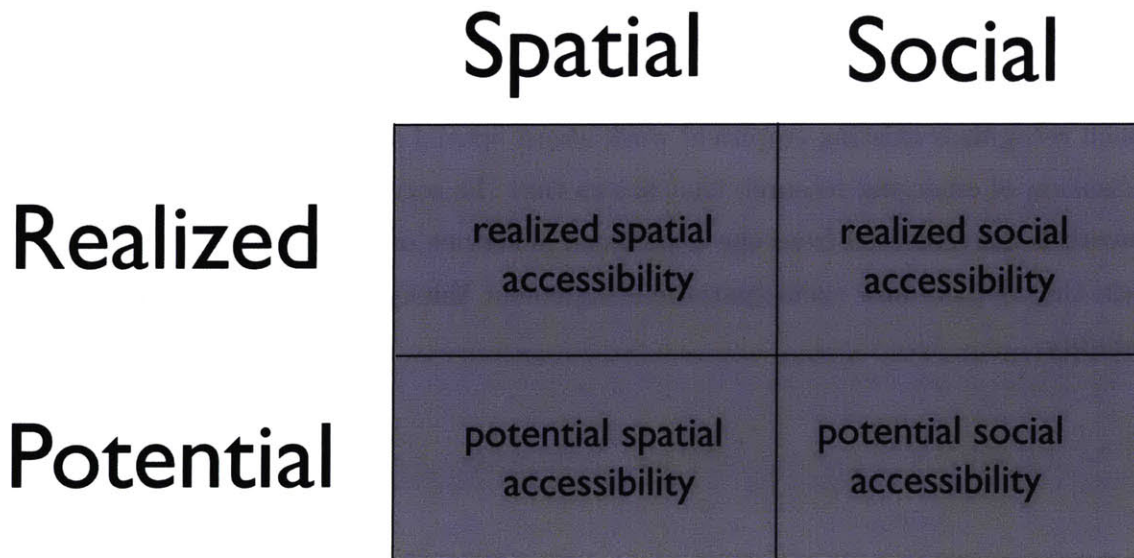
The user/type cross-section posits that service accessibility can be decomposed into four components: (1) spatial factors, (2) social factors, (3) realized accessibility and (4) potential accessibility (Allard, Tolman, & Rosen, 2003; Ikram et al., 2015; Khan, 1992; Mcgrail & Humphreys, 2015; Wang & Luo, 2005). Spatial factors capture the geographic relationship between service providers and actual and potential users (Blumenberg, 2004; Blumenberg & Ong, 2002; Paez, Mercado, Farber, Morency, & Roorda, 2009; Talen & Anselin, 1998). A person must overcome spatial barriers in order to use a service (Barona



& Blaschke, 2015; Mcgrail & Humphreys, 2015; Wang, 2012). In contrast, social factors capture socio-demographic, experiential, and cultural traits that mediate service usage. A person must also overcome social barriers in order to use a service (Farrington & Farrington, 2005; Hawthorne & Kwan, 2013; Paez et al., 2009; Powers, 1997; Schultheis, 2014). Potential accessibility examines the universe of persons who could use a service. In contrast, realized accessibility examine those persons who actually overcame the barriers to service usage (i.e. moved from potential to realized users) (Khan, 1992; Patel et al., 2008; Schultheis & Glasmeier, 2015).

The user/type cross-section treats the spatial and social components of service accessibility as separable. Further, it assumes that the spatial and social components can be additively combined to generate a holistic understanding of service accessibility (Khan, 1992).<sup>9</sup> In *Figure 20*, I provide a diagram of the user/type cross-section.

**Figure 20.** A diagram of the user/type cross-section.



Several researchers have recently questioned the saliency and utility of decomposing service accessibility into spatial and social factors. For instance, Hawthorne and Kwan

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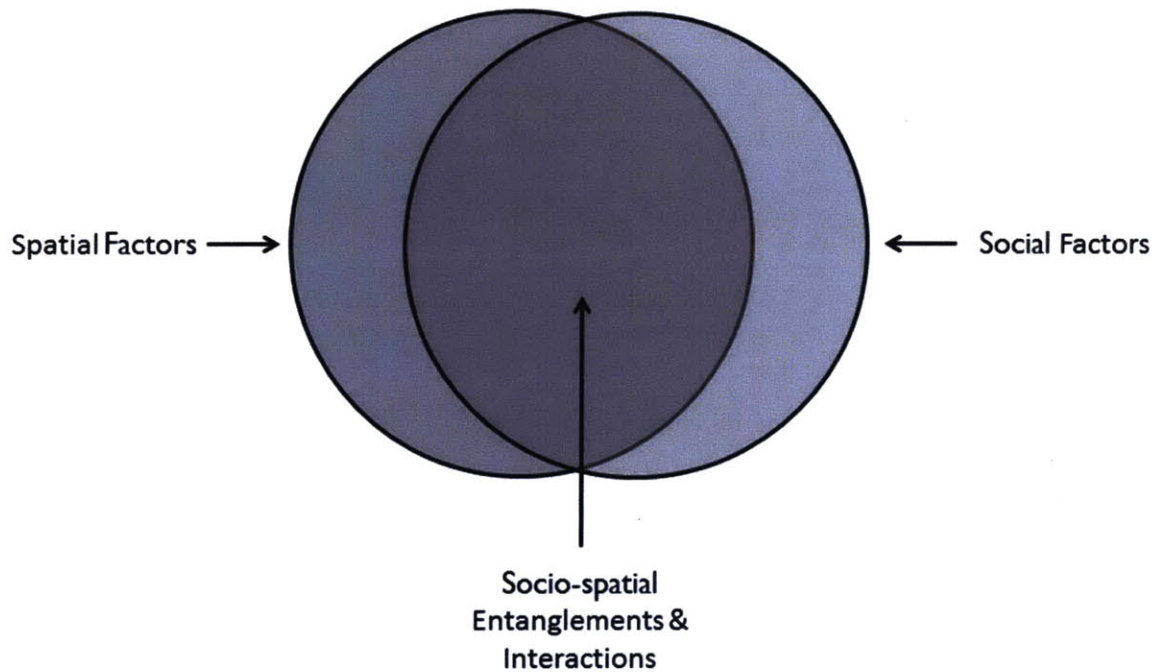
<sup>9</sup> The user cross/type cross-section does not explicitly define accessibility, service, or service usage. As I discuss in Footnote 2, the definition of these terms is a distinctly relevant need of the field although it is outside the scope of the current research.

(2013) showed that spatial measures of service accessibility do not explain how an individual's perceptions of service accessibility impact service usage. Similarly, Schultheis (2014) demonstrated that the effects of spatial and social accessibility factors on service accessibility vary across cultural and geographic space suggesting some type of entanglement and interaction between spatial and social factors. This type of research suggests that spatial and social factors do not fully explain service accessibility.

I use socio-spatial entanglement theory to frame this empirical research project. Socio-spatial entanglement theory posits that the entanglements of and interactions between spatial and social factors shape individual-scale service accessibility. The theory builds upon service accessibility research that challenges the saliency of the user/type cross-section. Socio-spatial entanglement theory acknowledges the relevancy of spatial and social factors to service accessibility but argues that service accessibility can only be explained by also understanding how factors are entangled and interact.

Socio-spatial entanglement theory posits that service accessibility consists of three factors: (1) spatial factors, (2) social factors, (3) and socio-spatial entanglements. This three factor approach recognizes existing empirical work about spatial and social factors. It is also a formalization of emerging research that shows that the service accessibility analytic framework is disconnected from the experience of service usage. In *Figure 21*, I present a diagram that depicts how socio-spatial entanglement theory conceptualizes service accessibility.

**Figure 21.** A diagram of socio-spatial entanglement theory.



## 6.2. The I2S2A Method

The I2S2A method is a mixed-method approach to studying realized service accessibility that enables researchers to generate explanations of the factors and entanglements that mediate service usage. The first step of the method involves the collection and analysis of empirical data related to spatial and social factors and socio-spatial entanglements. The remainder of the method is a series of steps that allow the researcher to retroductively generate explanations of the processes that could have caused the observed data. I discuss the I2S2A method in detail in chapter four and five. I, however, briefly revisit the theoretical orientation, purpose, and form of the I2S2A method in this section.

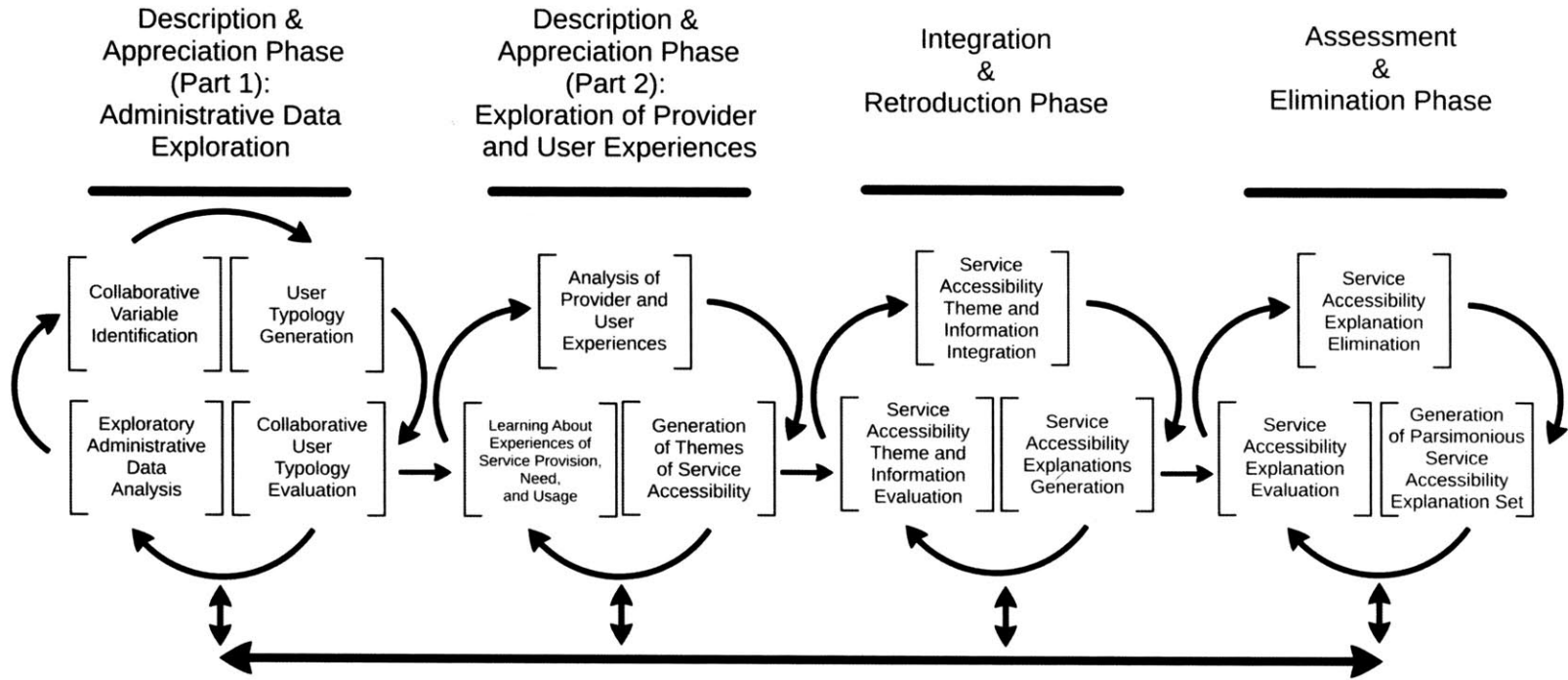
The I2S2A method consists of three phases. The I2S2A method's first phase, the Description and Appreciation Phase, involves the collection and analysis of quantitative

and qualitative data related to service usage. The phase is divided into two parts along the lines of the types of data examined (i.e. quantitative administrative data or qualitative provider and user interview data). Both parts engage the researcher in an iterative and reflexive process of investigation.

In the second and third phases of the I2S2A method, the researcher retroduces multiple explanations of accessibility from the data and then evaluates and eliminates some explanations to settle on a parsimonious explanation set. This explanation set describes the factors and entanglements that mediate realized service accessibility and also explains how these factors and entanglements interact to shape realized service accessibility.

In *Figure 22*, I provide a diagram of the I2S2A method. This diagram includes the various phases and parts of the I2S2A method and the activities which comprise each phase or part. The diagram presents the I2S2A method in a linear fashion to increase legibility. However, the researcher actually iterates within and between the I2S2A method's activities, parts, and phases. These iterative movements are indicated in *Figure 22* by the arrows on the right of the diagram connecting the parts and phases and the circular paths between activities within a part or phase. Lastly, I describe and explain the I2S2A method in depth in Chapter 5.

Figure 22. A detailed diagram of the I2S2A method.



### 6.3. Research Questions

This study has four research questions that I group into two categories. The first category of questions relates to validating socio-spatial entanglement theory and the I2S2A method. The second category of research questions aims to identify what factors, socio-spatial entanglements, and interactions mediate the realized accessibility of civil legal services provided by the Legal Services Center of the Harvard Law School (LSC-HLS). As this is a study of actual service users, no attempt is made to address the issue of estimating the potential user population. Although such an estimate could inform this research, it is outside the scope of this study.

#### ***6.3.1. Type 1 Questions: Socio-Spatial Theory & I2S2A Method Validation***

The first two research questions relate to the validation of socio-spatial entanglement theory and the I2S2A method. In the following paragraphs, I state these two research questions and explain their relevance to service accessibility research.

##### ***6.3.1.1. 1st Research Question: Does the User/Type Cross-Section or Socio-Spatial Entanglement Theory Better Describe and Explain the Realized Service Accessibility of LSC-HLS's Services?***

The user/type cross-section suggests that (1) the factors that impact service accessibility can be divided into spatial and social factors, (2) that these two types of factors can be analyzed separately, and (3) that the findings related to these two types of factors can be additively combined to provide a complete explanation of service accessibility. Emerging research suggests that social and spatial factors in isolation cannot explain service accessibility. Research also suggests that spatial and social factors do not explain how and why people use a service.

A finding that spatial and social factors adequately capture and explain the various factors that impact service usage would support the user/type cross-section. A finding that socio-spatial entanglement theory better explains how factors interact to mediate service usage would be empirical validation of socio-spatial entanglement theory. Such a finding would support an argument to alter how service usage, in particular, and service accessibility, more generally, is studied. Specifically, it would support shifting the focus of

service accessibility research towards how spatial and social factors and socio-spatial entanglements explain service usage.

***6.3.1.2. 2nd Research Question: Does the I2S2A Method Allow Researchers to Examine Spatial and Social Service Accessibility Factors and Socio-Spatial Entanglements in an Integrated and Interactive Manner?***

The I2S2A method might offer a better way to research service accessibility. This claim turns on whether the I2S2A method allows researchers to understand socio-spatial entanglements and interactions.

A finding that the I2S2A method is not capable of exploring realized service accessibility in an integrated and interactive fashion would support developing a method that could do this. A finding in support of the I2S2A method would support the I2S2A method's relevance to realized service accessibility research. It would suggest that efforts should be directed at refining it to improve its ability to explain socio-spatial entanglements and interactions.

***6.3.2. Type 2 Questions: Civil Legal Service Realized Accessibility***

The last two questions relate to understanding the realized accessibility of the civil legal services provided by the LSC-HLS. In the following sub-sections, I discuss the research question and the policy relevance of the research questions.

***6.3.2.1. 3rd Research Question: What Factors and Entanglements Shape the Realized Accessibility of LSC-HLS's Services?***

Understanding what factors and socio-spatial entanglements impact the realized accessibility of the civil legal services provided by LSC-HLS and how these factors and socio-spatial entanglements operate provides researchers and practitioners with a causal understanding of the realized accessibility of civil legal services. This understanding advances the research on the accessibility of civil legal services. It also directs interventions to increase accessibility at the factors and interactions that facilitate service usage.

### ***6.3.2.2. 4th Research Question: Do the Ways in which Spatial and Social Factors and Socio-Spatial Entanglements Shape the Realized Accessibility of LSC-HLS's Services Suggest Specific Interventions to Facilitate Service Usage?***

This question examines whether the generated realized service accessibility explanations illuminate new ways to facilitate service usage. Developing effective interventions to increase realized access to civil legal services amongst low-income households is both a practical problem related to unmet demand and an important component of ensuring rule of law in American society (Houseman, 2009; Lash, Gee, & Zelon, 1998; Tremblay, 2015). The need to develop new interventions to facilitate service usage is particularly important because of the limited financial resources of both service providers and service users (Call, 2014). While an increase in service providers might remedy many access issues, the financial resources required for such an intervention are unlikely to be forthcoming (Call, 2014; Lash et al., 1998).

## **6.4. Research Cases**

I worked with the Legal Services Center of Harvard Law School (LSC-HLS) to examine the factors that impact the realized accessibility of civil legal services. In particular, I worked with three clinics of LSC-HLS: (1) the Family Law and Domestic Violence Clinic, (2) the Predatory Student Lending Clinic, and (3) the Mattapan Initiative. All three clinics are located at LSC-HLS's office in Boston's Jamaican Plain neighborhood. I outline the criteria that I used to select these clinics below.

### ***6.4.1. Case Selection Criteria***

LSC-HLS operates multiple clinics that provide civil legal services in a variety of substantive legal practice areas. I selected three clinics from the larger set of LSC-HLS clinics using three criteria: (1) variation of the types of services provided by the set of clinics, (2) motivation of clinic staff to collaborate, and (3) clinic data collection practices.

First, I selected clinics that are representative of the spectrum of types of civil legal services. This criterion was used so that I would be able to explore whether the factors that impact service usage differ depending on the type of legal issue the user had. For instance, the factors that impact service usage for a person seeking services related to domestic violence could be different than those for persons seeking assistance with a predatory lending issue. Selecting clinics across a range of substantive practice areas



provides the opportunity to uncover whether realized accessibility varies by type of legal service provided.

Second, I sought to work with clinics whose managing attorneys were highly motivated to collaborate on the research. I deemed a high level of motivation to collaborate important for two reasons. First, the I2S2A method required a substantial amount of collaboration. Second, due to confidentiality requirements stemming from the attorney-client privilege, clinic staff needed to expend substantial time to recruit study participants without direct assistance from the researcher.

The final criterion for case selection was whether a clinic had consistent data collection practices. This criterion was directly related to the quantitative part of this research that analyzed LSC-HLS's administrative data. Although data collection practices differed between clinics, I sought clinics whose data collection practices were consistent over time within the clinic. For instance, I sought clinics whose use and recordation of case closure information, although perhaps different from other clinics, was the same over the period of interest. This consistency in data meaning and recordation was necessary for the analysis of the clinic's administrative data.

In the remainder of this chapter, I provide contextual information about the three clinics that I selected for this study, the Family Law and Domestic Violence Clinic, the Predatory Student Lending Clinic, and the Mattapan Initiative.

#### ***6.4.2. Case 1: The Family Law and Domestic Violence Clinic***

The Family Law and Domestic Violence clinic provides a variety of family law legal services to domestic violence survivors. The legal services the clinic provides include assistance with issues related to divorce, paternity, custody, child support, and restraining orders. The clinic currently obtains the majority of its client (roughly 95%) via referral from an area domestic violence intervention and prevention program operated by the Brigham and Women's Hospital. The clinic serves persons located in the greater Metro-Boston area.

The Family Law and Domestic Violence clinic provides services in a manner that ensures client safety while also establishing strong bonds of trust between client and clinic staff. The focus on client safety and trust building is a function of the managing attorney's practice philosophy, the deeply personal and potentially traumatic information needed to provide appropriate legal representation, and the fact that many family law legal actions have the potential to expose clients to emotional and physical danger. The clinic is located at LSC-HLS's office in Boston's Jamaica Plain neighborhood.

### ***6.4.3. Case 2: The Predatory Student Lending Clinic***

The Predatory Student Lending Clinic provides a variety of civil legal services related to student debt and predatory lending. The clinic primarily assists clients with issues related to for-profit educational institutions.

The clinic's users are mostly lower-income persons of color who are non-traditional students. Users generally fall into two categories. The first category is people who believe that the educational institution they attended did not provide the services promised, or, as the clinic's managing attorney stated, "Ripped them off." The second category is people whose educational debt is unduly oppressive. These categories often overlap and many clients fall into both categories. The clinic primarily serves persons who reside in the greater Metro-Boston area. The clinic is located at LSC-HLS's office in Boston's Jamaica Plain neighborhood.

### ***6.4.4. Case 3: The Mattapan Initiative***

The Mattapan Initiative provides post-foreclosure eviction defense services in the Mattapan neighborhood. The clinic aims to create an "eviction free zone" in Boston's Mattapan neighborhood. This entails prioritizing higher intensity client representation within a specific geographic area as opposed to lower intensity but higher volume legal services.

The clinic's users reflect the demographic profile of the Mattapan neighborhood and are primarily lower income African American persons who are either renters or homeowners. Homeowner clients tend to have relatively stable employment histories, as would be expected, while there is more variation in the employment stability of renter clients. That

being said, all of the clinic's users' financial circumstances are tenuous and changes in mortgage payment obligations or employment directly impact their housing and financial stability. The clinic is located at LSC-HLS's office in Boston's Jamaica Plain neighborhood. It does, however, conduct some user intakes in Boston's Mattapan neighborhood.

#### ***6.4.5. The Three Clinics' Services***

The three clinics operate in different substantive areas of law. Despite the difference between clinic services due to their substantive practice areas, the services provided by the three clinics are similar both in how they respond to user needs and the contingent duration and intensity of engagement.

All three clinics attempt to be responsive to individual user needs. For instance, the clinics attempt to communicate with a user via the user's preferred mode of communication (text, phone, email, face-to-face). Another example of this responsiveness is that all three clinics attempt to respond to user time flexibility. This may mean meeting clients outside of traditional operating hours and or tailoring client communication to fit within user schedules.

Regarding duration and intensity of engagement, the duration of an individual case and the level of engagement required are highly contingent for all three clinics. A divorce might take 2 months and involve only a few face-to-face contacts or it might take 3 years and involve 20 face-to-face contacts. Similarly, a housing case might settle two days after the complaint is filed or it might drag on for several months. The level of intensity and duration of user engagement is highly contingent and case specific in all three clinics.

### **6.5. Conclusion**

I investigate the realized accessibility of the legal services provided by the Predatory Lending Clinic, the Mattapan Initiative, and the Family Law and Domestic Violence Clinic. The investigation is framed using socio-spatial entanglement theory. Socio-spatial entanglement theory posits that service accessibility is mediated not just by spatial and social accessibility factors but also by socio-spatial entanglements and interactions. I

discuss socio-spatial entanglement theory and its relationship to current service accessibility theory in detail in Chapter 3.

I seek to answer four questions with this research. The first two questions relate to whether socio-spatial entanglement theory and the I2S2A method allow researchers to explain realized service accessibility. The two other questions relate to how factors and socio-spatial entanglements shape realized civil legal service accessibility and how providers can facilitate service usage.

In the next chapter, I detail how I applied of the I2S2A method to investigate realized civil legal service accessibility.

## **Chapter 7: Researching Civil Legal Service Realized Accessibility Using the Integrated, Interactive, Socio-Spatial Method**

I use the interactive, integrated, socio-spatial accessibility (I2S2A) method to conduct this research. The I2S2A method leverages quantitative and qualitative empirical methods in conjunction with a non-linear, iterative and reflexive mode of inquiry to first describe and then explain how factors, entanglements, and causal mechanisms mediate realized accessibility and a user's movement from potential to actual service user.

The I2S2A method, unlike current realized service accessibility research methodologies, allows researchers to explain the *what* and *why* of realized service accessibility. It does this by providing researchers with the tools to understand the complex web of socio-spatial entanglements that shape realized service accessibility.

### **7.1. Application of the I2S2A Method**

The I2S2A method divides the research process into three phases, namely, the Description and Appreciation Phase, the Integration and Retroduction Phase, and the Assessment and Elimination Phase. The Description and Appreciation Phase is further divided into two parts, namely, the Administrative Data Exploration Part and the Exploration of Provider and User Experiences Part. Each phase and part is composed of multiple activities as illustrated in *Figure 22* and discussed in detail in Chapter 5. In the following section, I detail how I applied the I2S2A method to investigate the realized accessibility LSC-HLS's civil legal services.

### **7.2. Description and Appreciation Phase**

The first phase of the I2S2A method is the Description and Appreciation Phase. During this phase, I collected, analyzed, and summarized empirical data relevant to my research questions. I used the information and the typology of users that I generated via this phase in subsequent phases.

The Description and Appreciation Phase consists of two parts, (1) the Administrative Data Exploration Part and (2) the Exploration of Client and User Experiences Part. During the first part, the Administrative Data Exploration Part, I uncovered patterns related to who uses the services of LSC-HLS from LSC-HLS's client management system data using descriptive statistics and data reduction techniques. In the next part of the Description and Appreciation Phase, the Exploration of Provider and User Experiences Part, I explored whether the patterns that I identified in the previous part help explain the causal processes that underlie why people use LSC-HLS's services. The first part of this phase is a quantitative inquiry that bounds the area of inquiry. The second part of this phase is a qualitative inquiry during which I explored the realized accessibility within the bounds delineated by the Administrative Data Exploration Part.

In the following sections, I detail the results of the two parts of the I2S2A method's Description and Appreciation Phase. I first discuss the application and results of the Administrative Data Exploration Part and then I proceed to discuss the application and results of the Exploration of Provider and User Experiences Part. Lastly, I discuss how these two parts are interrelated and result in a realization of the Description and Appreciation Phase's goals.

### ***7.2.1. Part 1 of Phase 1 - Administrative Data Exploration***

In the first part of the I2S2A method, the researcher leverages administrative data about service usage to generate (1) information about service usage and (2) a typology of service users. The Administrative Data Exploration Part consists of four activities: (1) the Exploratory Administrative Data Analysis Activity, (2) the Collaborative Variable Identification Activity, (3) the User Typology Generation Activity, and (4) the Collaborative User Typology Evaluation Activity. These activities allow the researcher to gain a general understanding of the types of persons who seek help and the types of problems these persons have. While generating these descriptions, the researcher should be continually reflecting on the weaknesses and strengths of the administrative data, what it captures and what it fails to capture, and the ways in which it might be accurate or biased.

Administrative data offers the most complete and dimensional data available for investigations of actual service users. Other available data sources, for instance publicly available population surveys, provide rough estimates of the population of potential service users but do not allow for the identification of the populations that might need a service or those persons who have used the service. In contrast, administrative data provides comprehensive, high resolution (i.e. individual-scale) information about the persons who use a particular service including many of the characteristics that are captured by demographic surveys but at the individual- as opposed to aggregate-scale. Administrative data provides a window into the types of persons who use a service that publicly available demographic data cannot. That being said, administrative data only provides information about actual service users. It provides no information of who might need or use a service. This, however, is of limited concern for realized service accessibility studies like this research.

I used a large data export from LSC-HLS's case management system to conduct this part of the I2S2A method. The data export contained deidentified individual-scale data for all persons seen by any LSC-HLS clinic over a multi-decade period. I extracted a subset of the larger data set that contained only clients of the three clinics studied, the Predatory Student Lending Clinic, the Family Law and Domestic Violence Clinic, and the Mattapan Initiative over the three-year period from 4.1.2012 to 3.31.2015. The subset included any person with a case opened or closed during the three-year period with the three clinics.

Users were recorded in LSC-HLS's case management system if, at a minimum, the person contacted a clinic and clinic staff conducted an intake with them. During the intake process, the person explains their problem to clinic staff. Clinic staff, upon evaluating the problem, including available legal remedies and whether the services needed are the type that the clinic provides, decide whether to (1) provide limited advice and or referral and close the case, (2) further investigate the matter, or (3) sign a retainer agreement to provide either limited representation or full representation. The specific actions taken vary substantially by clinic and the managing attorneys practice philosophy. For instance, the Mattapan Initiative tended to execute retainers for limited representation with persons and then draft new limited representation retainers depending on the outcome of each subsequent phase of the representation. Other clinics, however, would sign full retainer

agreements at the outset of representation.<sup>10</sup> Although the formal processes related to user representation varied between the clinics, the highly contingent and case specific engagement level did not differ between clinics.

The three clinics and I collaboratively selected a subset of client attributes to examine based on exploratory data analysis and data completeness. The final data set included 6 variables for 344 clients (i.e. was 344 rows long and 6 columns wide).<sup>11</sup> The variables associated with each client were gender, race, age, type of legal problem, intensity of representation (generated from case closing code), and distance from residence zip code to LSC-HLS.

The set of possible variables that we selected from was very sparse once variables that were infrequently used were eliminated. The data set also did not include several variables that would have been useful for this investigation. For instance, a variable that captured the number of times the user had contact with LSC-HLS and the contact method and some measure of the matters complexity and severity as judged by an attorney would have been useful.

#### ***7.2.1.1. Who Seeks Help from the Three LSC-HLS Clinics***

I describe the types of people who seek help from the three clinics studied in this subsection. In *Table 2*, I present a table that shows the number of persons who sought help from the three clinics during the three-year period of study. There was a high degree of variance between the numbers of persons each clinic served. These differences are likely

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<sup>10</sup> This measure of service usage makes does not capture what level of services are appropriate given the type of problem experienced by a service user. Based on my interviews with LSC-HLS managers, no measure of the number of contacts or time needed by service type is possible. The amount of time an attorney needs to see a client face-to-face or the length of a case is highly contingent. The quantification of typical contacts and duration may be simpler in other legal fields. It would be an intense and complicated endeavor that is outside the scope of this dissertation to attempt to define service usage in a manner that is responsive to client need.

<sup>11</sup> The full data extract contained over twenty attributes for each user. However, the vast majority of these attributes were not reliably used by LSC-HLS as evidenced by the fact that many of attributes had null values for over eighty percent of users. The six attributes that we selected for analysis were, in no small part, influenced by the fact that these attributes were the only attributes that were reliably recorded by the three clinics.



due to differences in the speed and required attorney involvement in different substantive areas of law. *Table 2* does, however, provide a useful window into the volume of persons who overcome the barriers to service usage and actually used the three clinics' services.

**Table 2.** A table detailing users by clinic between 4.1.2012 and 3.31.2015.

Clinic	User Count
Family Law and Domestic Violence Clinic	163
Mattapan Initiative	78
Predatory Student Lending Clinic	103
Total	344

Women were the predominant users of all three clinics. The Mattapan Initiative and Predatory Student Lending Clinic had a more even ratio of male to female users than the Family Law and Domestic Violence clinic, sixty seven percent and seventy five percent female, respectively. The Family Law and Domestic Violence Clinic served almost exclusively females (97% female). In *Table 3*, I present a table that shows the count and percent of users by gender.

**Table 3.** A table detailing users by gender by clinic.

	Female	Male	Transgender	Unknown
Family Law and Domestic Violence Clinic	158 (97%)	2 (1%)	0	3 (2%)
Mattapan Initiative	52 (67%)	25 (32%)	1 (1%)	0 (0%)
Predatory Student Lending Clinic	77 (75%)	26 (25%)	0	0 (0%)

The users of all three clinics were predominantly people of color. Mattapan Initiative users were predominantly African American or Black (59%). The largest racial/ethnic group served by the Family Law and Domestic Violence Clinic was persons who identified as Hispanic or Latino (42%). The largest racial/ethnic group served by the Predatory Student Lending Clinic was African American or Black persons (47%). In *Table 4*, I provide a table that lists the count and percentage of persons served by race/ethnicity by clinic.

**Table 4.** A table detailing users by race or ethnicity by clinic.

	<b>Family Law and Domestic Violence Clinic</b>	<b>Mattapan Initiative</b>	<b>Predatory Student Lending Clinic</b>
African American	28 (17%)	46 (59%)	48 (47%)
Black			
Hispanic or Latino	68 (42%)	15 (19%)	18 (17%)
Caucasian	41 (25%)	16 (21%)	21 (20%)
Asian American	2 (2%)	0 (0%)	4 (4%)
Some Other Race	19 (12%)	1 (1%)	7 (7%)
Two or More Races	1 (1%)	0 (0%)	1 (1%)
Unknown	3 (2%)	0 (0%)	4 (4%)
<b>Total</b>	<b>163 (100%)</b>	<b>78 (100%)</b>	<b>103 (100%)</b>

The minimum age of the users of all three clinics was early-20s and the median age was late thirties and early forties. In *Table 5*, I list the average age, the median age, the minimum age, and the maximum age of users by clinic. The distribution of the age of persons served was negatively (left) skewed for all clinics. In *Table 5*, I also provide the percentage of persons whose age was recorded in the administrative data. I provide this information because there was some variance between the three clinics regarding the percentage of persons served for whom age was recorded.

**Table 5.** A table detailing users by age by clinic.

	Family Law and Domestic Violence Clinic	Mattapan Initiative	Predatory Student Lending Clinic
Minimum	22	25	21
Mean	39.7	48.6	42.9
Median	38	45.5	43
Maximum	70	82	81
Age Unknown	2%	20%	1%

The average distance from a user’s residence to LSC-HLS was approximately three and a half miles for each of the clinics.<sup>12</sup> The distributions of the distance from a service user’s residence to LSC-HLS are positively (right) skewed for all three clinics. In *Table 6*, I present a table with the mean, median, standard deviation, minimum, and maximum distances from a user’s residence to LSC-HLS.

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<sup>12</sup> The distance from a user’s residence to LSC-HLS’s office in Boston’s Jamaica Plain neighborhood was based on the zip code attribute associated with each user record. In cases where a client’s zip code was unknown, the distance was based on the centroid of the neighborhood or city in which the user resided. The zip code of the user was the finest grained locational attribute available due to strong user confidentiality protections associated with legal representation. I calculated the Euclidean distance from the centroid of the user’s zip code to the street address of LSC-HLS’s office in Boston’s Jamaica Plain neighborhood using the ArcGIS software package (ESRI, 2014). In the present context, Euclidean distance was an appropriate method for measuring distance for three reasons. First, users resided in areas across the greater Boston-area making the effective spatial scale of the analysis rather large. Euclidean distance is a reasonable measure of distance at larger spatial scales. Second, there was substantial locational uncertainty about the user’s residence. The use of network-based distance measures would only appear to offer a more accurate measure of distance and would actually suggest that a greater degree of spatial accuracy was in the data than actually was present. Lastly, discussion with LSC-HLS staff indicated that service users used a variety of modes to travel to LSC-HLS. For these three reasons, I decided that Euclidean distance was the most appropriate distance measure for this research project.

**Table 6.** A table detailing mean, median, minimum, standard deviation, and maximum distance from a service user’s residence to LSC-HLS by clinic.

	<b>Family Law and Domestic Violence Clinic</b>	<b>Mattapan Initiative</b>	<b>Predatory Student Lending Clinic</b>
Minimum (Miles)	0.8	0.6	0.8
Mean (Mile)	5.6*	3.57	6.7
Median (Miles)	3.4*	2.9	3.9
Standard Deviation (Miles)	6.2*	4.97	7.4
Maximum (Miles)	67*	32	42
Distance Unknown	1%	0%	0%

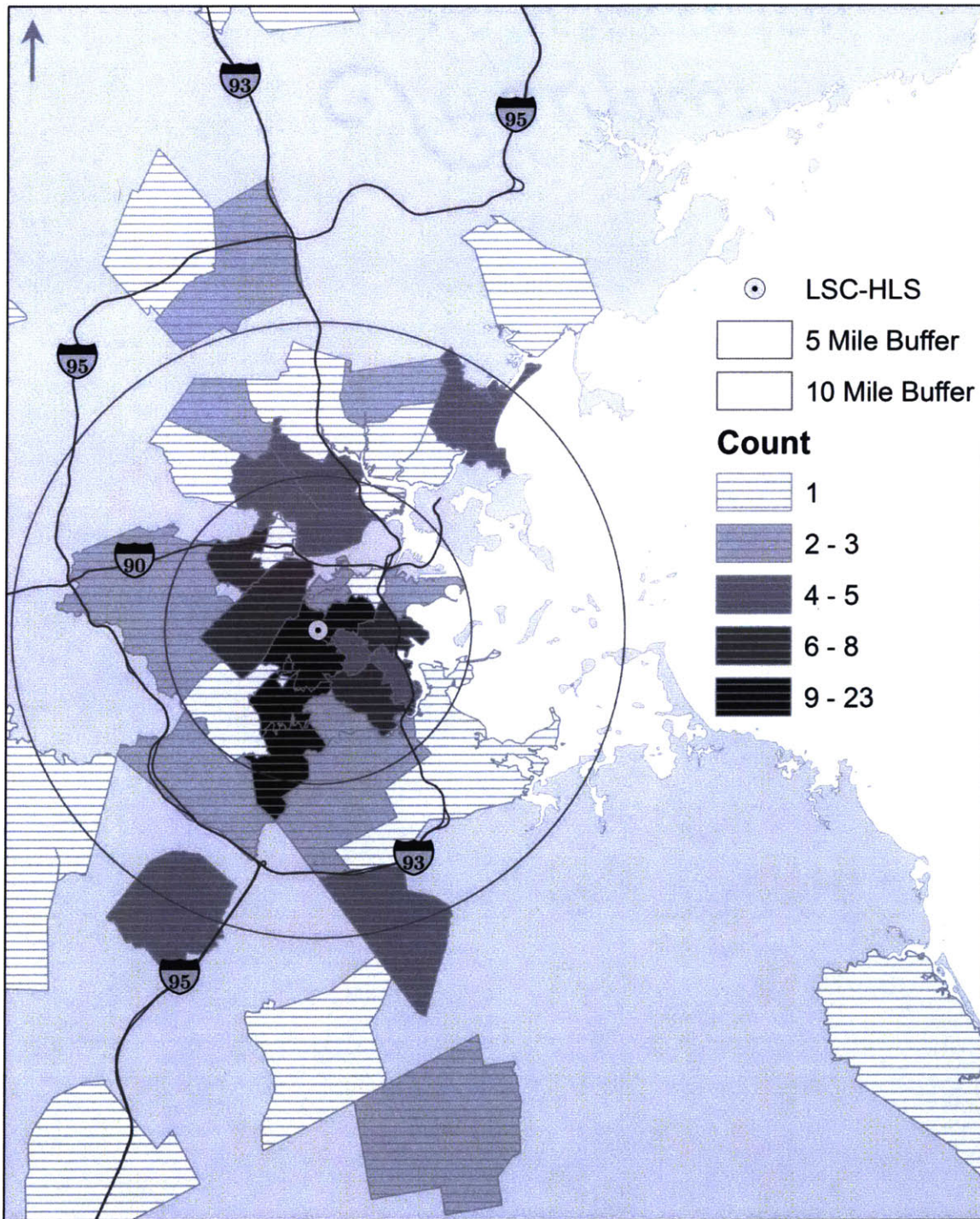
\* Outlier who resided 600 miles from LSC-HLS excluded. The statistics with the outlier included are: minimum = 0.8, mean = 9.4, median = 3.4, standard deviation = 47.26, maximum = 600.

I present choropleth maps of the residence location of users for each of three clinics in *Figure 23*, *Figure 24*, and *Figure 25*. As previously mentioned, all three clinics operate out of LSC-HLS’s office in Boston’s Jamaica Plain neighborhood. In *Figure 23*, I present a choropleth map of users of the Family Law and Domestic Violence Clinic. In *Figure 24*, I present a choropleth map of users of the Mattapan Initiative. In *Figure 25*, I present a choropleth map of users of the Predatory Student Lending Clinic. All three choropleth maps detail the number of clinic users by residence zip code for persons who reside in the City of Boston and by residence town for persons who reside outside the City of Boston.

I excluded a small number of users from these maps. For the Family Law and Domestic Violence Clinic, I excluded four users from the map that I present in *Figure 23*. Two of the excluded users had no locational information associated with them and two of the excluded users resided outside of Massachusetts. For the Mattapan Initiative, I excluded eight users. All eight of these users had insufficient locational information associated with them to enable mapping. Lastly, for the Predatory Student Lending Clinic, I excluded three users. One of the excluded users resided outside of Massachusetts. Two of the

excluded users had insufficient locational information associated with them to enable mapping.

**Figure 23.** A choropleth map of the count of Family Law and Domestic Violence Clinic users by residence location by zip code within the City of Boston and by town outside of the City of Boston.

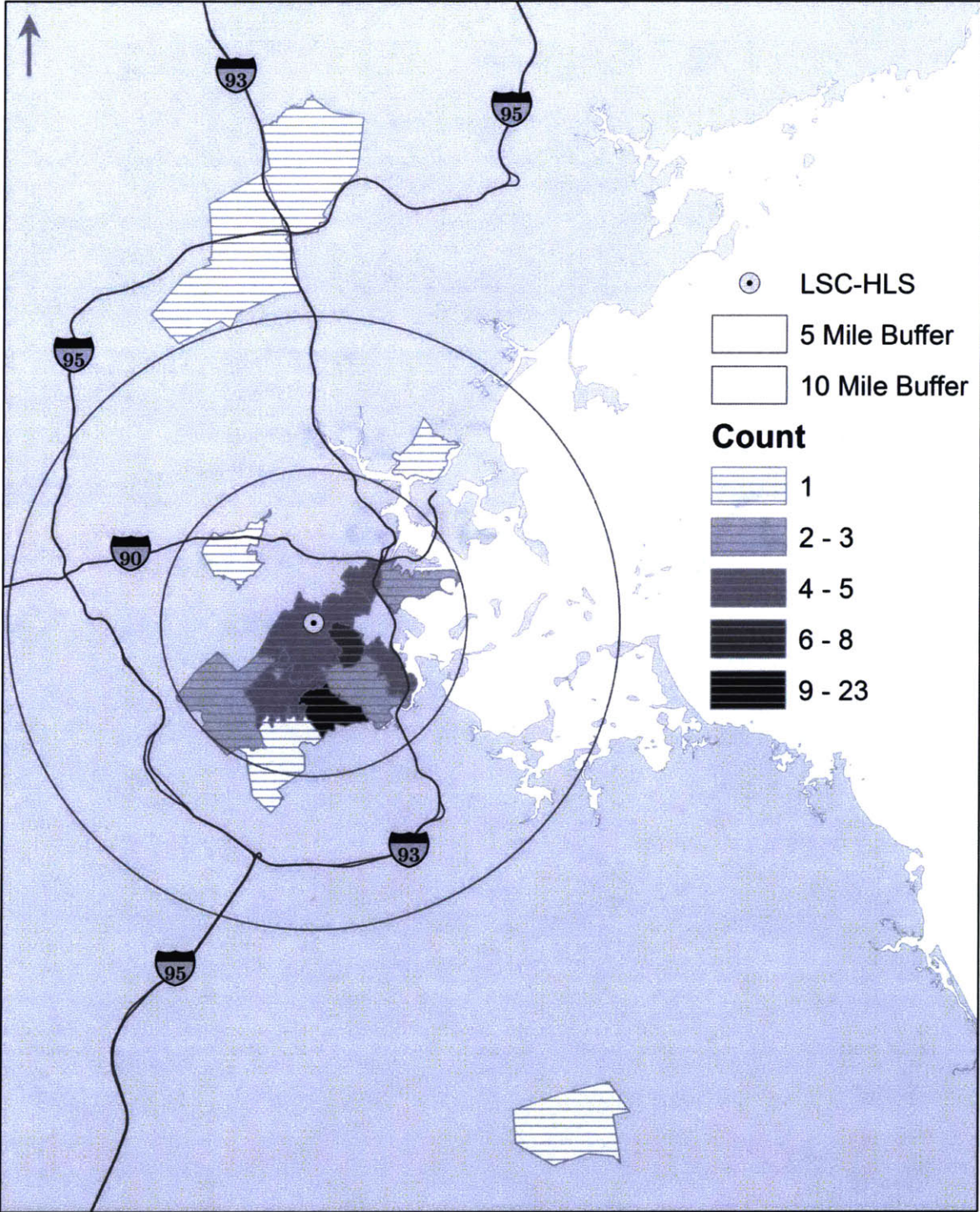


Sources: MassGIS, HERE Zipcode Data,  
TigerLine 2015, LSC-HLS

Eric Schultheis  
08.14.2016

0 1.25 2.5 5 Miles

**Figure 24.** A choropleth map of the count of Mattapan Initiative users by residence location by zip code within the City of Boston and by town outside of the City of Boston.

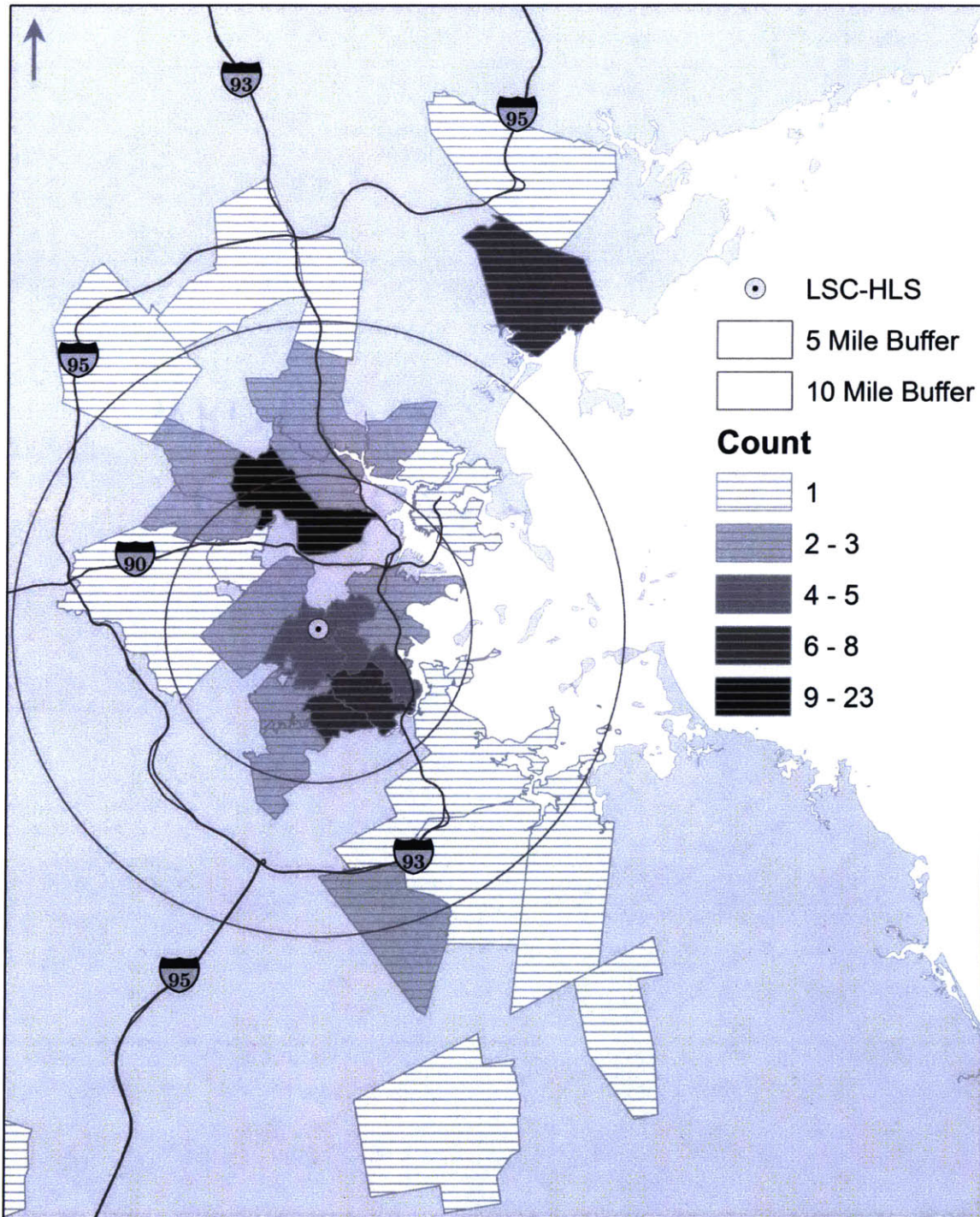


Sources: MassGIS, HERE Zipcode Data, TigerLine 2015, LSC-HLS

Eric Schultheis  
08.14.2016

0 1.25 2.5 5 Miles

**Figure 25.** A choropleth map of the count of Predatory Student Lending Clinic users by residence location by zip code within the City of Boston and by town outside of the City of Boston.



Sources: MassGIS, HERE Zipcode Data, TigerLine 2015, LSC-HLS

Eric Schultheis  
08.14.2016

0 1.25 2.5 5 Miles



It is difficult to estimate the three clinics' potential user populations. Although the estimation of the potential user population is not the goal of this or any realized access study, a means to reasonably estimate the potential user population would be useful. In the context of civil legal services, the potential user population is difficult to estimate for several reasons.

The concept of civil legal services includes a large number of different types of services. Researchers have attempted to estimate the need for some services although other substantive areas lack any reasonable estimates. A method to produce up-to-date, reliable, and context-responsive global estimates is needed in the civil legal services accessibility field and is likely critical to policy interventions designed to address some civil legal service accessibility problems.

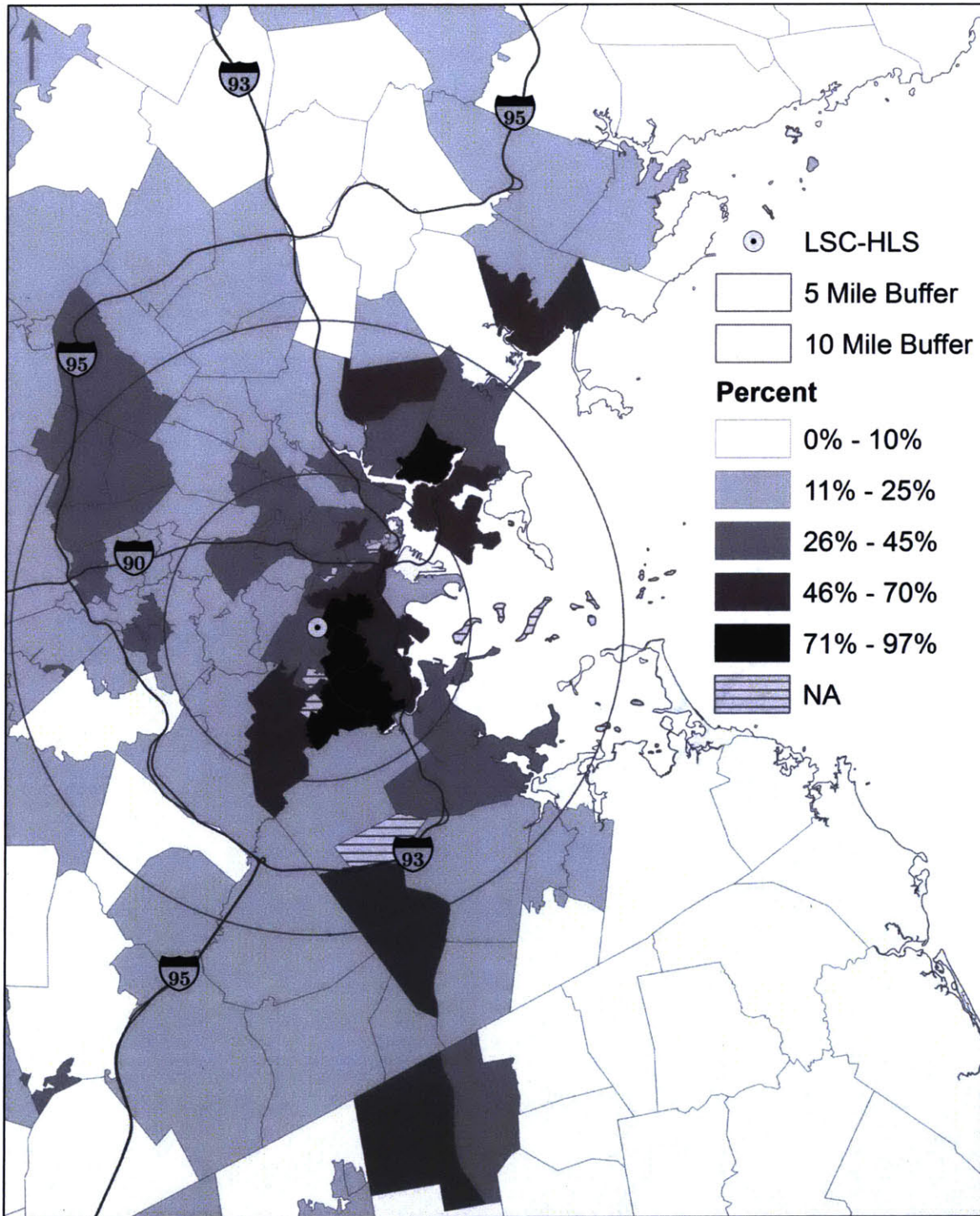
The issue of the potential user population is further complicated for service providers who use case-by-case eligibility standards. Programs that are funded by the federal government have bright-line eligibility standards that, when coupled with publicly available demographic data, can be used to generate a rough estimate of the potential user population. However, providers who make eligibility determinations on a case-by-case basis, as do the three clinics, frustrate attempts to even roughly estimate the potential user population.

In cases like the three clinics, researchers can currently only provide contextual descriptions of populations who might use the service. I provide three maps to describe, in broad terms, the spatial distribution of three populations who might use the three clinics' services, people of color, low-income persons with limited education, and low-income families with children. These three maps are for context only and, at best, hint at the "tip of the iceberg" of potential service users.

In *Figure 26*, I present a choropleth map of persons of color as a percentage of the total population by zip code tabulation area. In *Figure 27*, I present a choropleth map of persons aged twenty five or older with a high school education (or equivalency), some college, or an associate degree whose income is below the federal poverty limit as a percentage of the total population twenty five years or older below the federal poverty limit by zip code tabulation area. In *Figure 28*, I present a choropleth map of married,

male, and female headed family households with related children under eighteen with a ratio of family income to the federal poverty limit below 1.85 as a percentage of the total family household population by zip code tabulation area.

**Figure 26.** A choropleth map of persons of color as a percentage of the total population by zip code tabulation area.

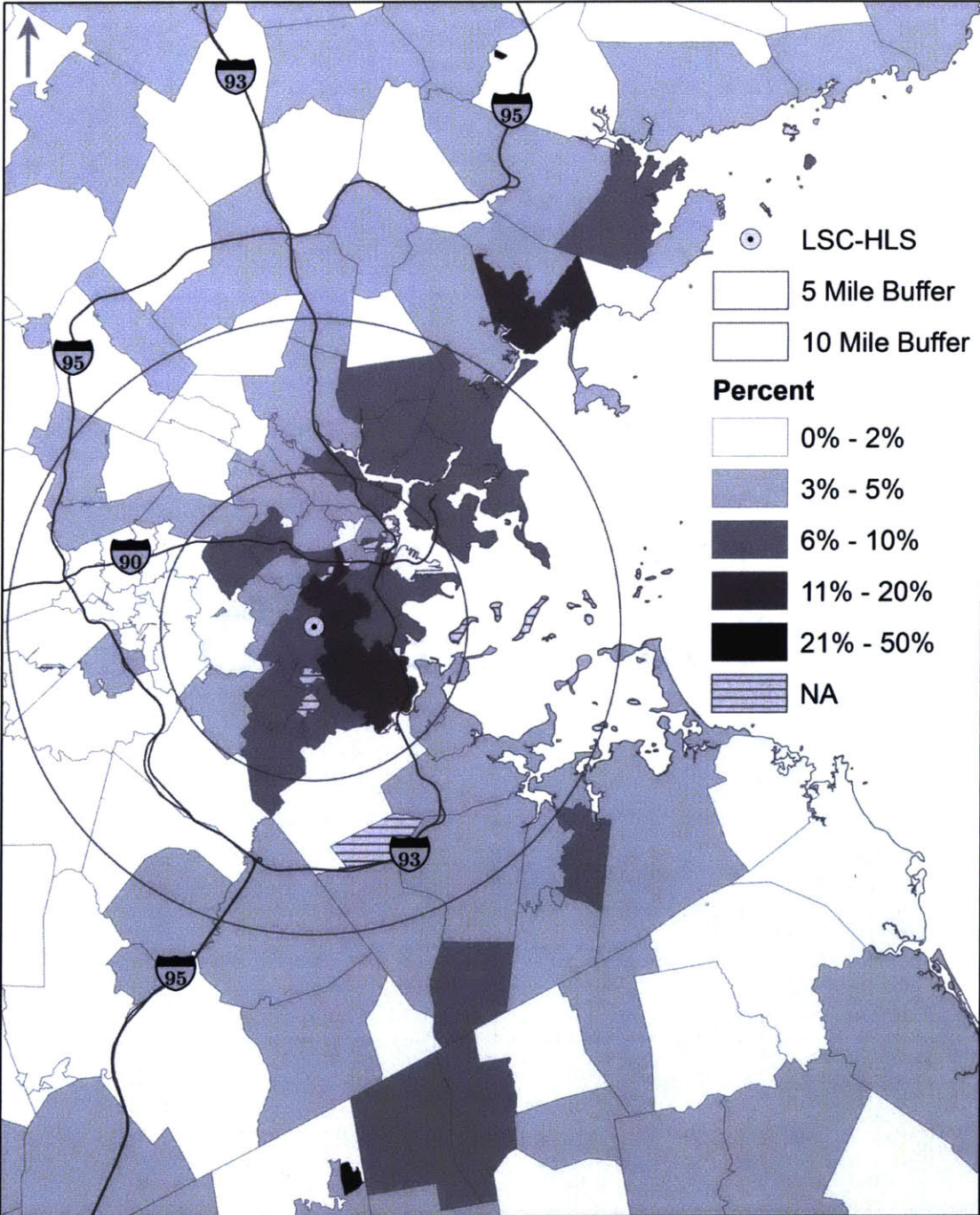


Sources: MassGIS, TigerLine 2015,  
LSC-HLS, 2010-14 ACS

Eric Schultheis  
08.14.2016

0 1.25 2.5 5 Miles  
[Scale bar]

**Figure 27.** A choropleth map of persons aged twenty five or older with a high school education (or equivalency), some college, or an associate degree whose income is below the federal poverty limit as a percentage of the total population twenty five years or older below the federal poverty limit by zip code tabulation area.

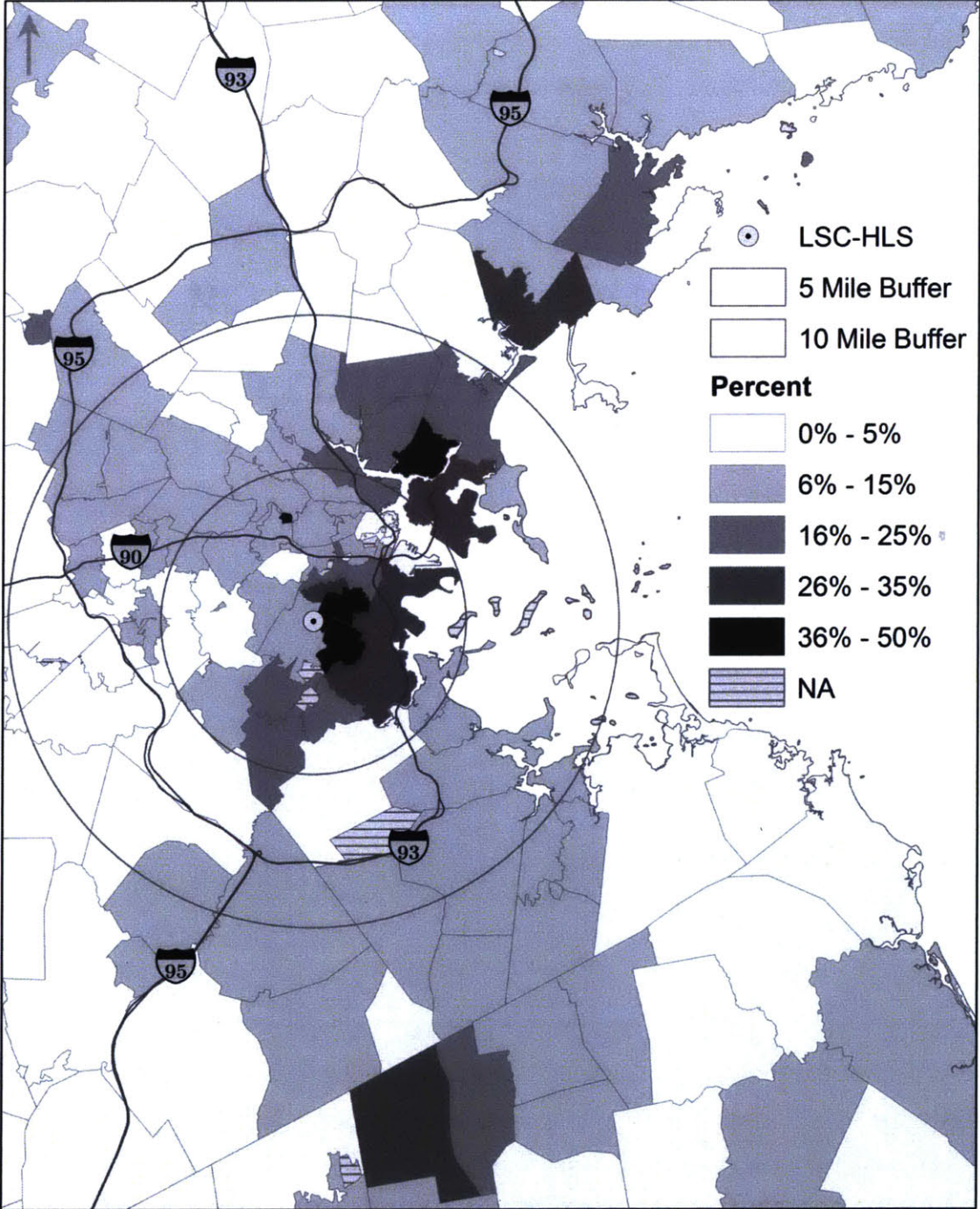


Sources: MassGIS, TigerLine 2015,  
LSC-HLS, 2010-14 ACS

Eric Schultheis  
08.14.2016

0 1.25 2.5 5 Miles

**Figure 28.** A choropleth map of married, male, and female headed family households with related children under eighteen with a ratio of family income to the federal poverty limit below 1.85 as a percentage of the total family household population by zip code tabulation area.



Sources: MassGIS, TigerLine 2015,  
LSC-HLS, 2010-14 ACS

Eric Schultheis  
08.14.2016

0 1.25 2.5 5 Miles

The Family Law and Domestic Violence Clinic assisted users with a variety of legal matters including visitation, child support, and divorce. The summarization of the legal issue variable might be interpreted as suggesting the substantive focus of the Family Law and Domestic Violence Clinic. This, however, is not true as the majority of matters this clinic assists users with are interrelated. For instance, a user will often receive a variety of services but LSC-HLS’s case management system requires clinic staff to only select one issue type. In light of this fact, a summarization of the legal issue variable for this clinic is only a general indicator of the variety of services provided to users.

The majority Family Law and Domestic Violence Clinic users received legal assistance related to issues concerning divorce (56%) followed by issues concerning child custody (19%). In *Table 7*, I present the percentage and count of user issues by type for persons who sought help from the Family Law and Domestic Violence Clinic.

**Table 7.** A table detailing Family Law and Domestic Violence Clinic users by issue type.

	Count	Percent
Abuse Prevention	13	8%
Child Support	5	3%
Custody	31	19%
Divorce	91	56%
Paternity	8	5%
Visitation	3	2%
Other	12	7%
Total	163	100%

The Mattapan Initiative primarily assisted persons with issues related to eviction (44%). Summarizations of issue type are less problematic for the Mattapan Initiative compared to the services provided by the Family Law and Domestic Violence Clinic as housing legal representation typically deals with discrete issues. However, another issue partially undermines the usefulness of the legal issue variable for the Mattapan Initiative.

The Mattapan Initiative issue categories are at different scales. Further, some issue categories logically contain other issue categories. For instance, the Eviction category includes evictions for various causes including Summary Process for Cause, Summary Process No Fault, and Summary Process for Non Payment. It is not clear from the data whether the higher level categories are only used in instances when the issue does not fall into a more specific category. In light of this fact, issue summarizations are, at best, only generally descriptive. In *Table 8*, I list the count and percent of Mattapan Initiative user issues.

**Table 8.** A table detailing Mattapan Initiative users by issue type.

	Count	Percent
Appeal	1	1%
Conditions of Disrepair	4	5%
Eviction	34	44%
Summary Process for Cause	1	1%
Summary Process No Fault	5	6%
Summary Process for Non-payment	11	14%
Rejection of Public/Subsidized Housing Application	2	3%
Transfer	1	1%
Housing - Other	2	3%
Other	17	22%
Total	78	100%

The legal issue variable is least informative for the Predatory Student Lending Clinic. The clinic uses only two categories to classify user issue type and the vast majority of user issues are categorized in a single issue category. This category is broad and could encompass any number of legal issues. In *Table 9*, I present a table with the count and percentage of Predatory Student Lending Clinic user legal issues.

**Table 9.** A table detailing Predatory Student Lending Clinic users by issue type.

	<b>Count</b>	<b>Percent</b>
Consumer - Other	3	3%
Predatory Lending - Other	100	97%
Total	103	100%

The final service user attribute that I present is the intensity of a clinic’s involvement with a user. Clients whose cases were categorized as an “intake” were classified as the clinic having low involvement (value of 1) with the user. Users whose cases were categorized as being “limited representation” were deemed to represent a medium level of involvement (value of 2). Users whose cases were categorized as being “full representation” were deemed to be high level of involvement (value of 3).

Cases categorized as an intake typically involved one or two user contacts (either by phone or in-person). During the contact(s), a clinic staff person develops the factual basis of the problem, evaluates whether a legal remedy exists for the problem, determines whether the problem fits within the clinic’s practice area, and, if a legal remedy is available, estimates the viability of the remedy. In some instances, the user might also be given brief legal advice.

A limited representation case often involves multiple user contacts. In some instances, a clinic categorizes a case as “limited representation” when legal advice is given but no retainer agreement is executed. In other cases, a clinic only categorizes a case as “limited representation” if a retainer for limited legal representation for a specific issue are provided. For instance, a limited retainer might only cover a motion for dismissal in a housing case. Depending on the outcome of the limited representation, the clinic might sign a new limited retainer agreement. A user whose case is categorized as “limited representation” could thus receive essentially complete representation. The distinction between “limited representation” and “full representation” turns on the obligations of the clinic to the user as determined by the content of a retainer agreement that specifies the scope of representation.



Cases categorized as “full representation” typically involved multiple user contacts and a higher level of service. Such cases frequently involved a general retainer agreement between the clinic and the user. For instance, the retainer would cover an entire housing problem, say eviction, as opposed to a single motion, say, a motion to dismiss.

This variable is a reasonable measure of the clinic’s involvement with its users but cross-clinic comparisons based on this attribute are not valid due to differences between how clinics recorded this attribute. For instance, some clinics categorized a case as “limited representation” any time legal advice was given. Another clinic might only categorize a case as “limited representation” if a limited retainer agreement was executed between the user and the clinic. The type of representation provided does not capture the frequency of contacts with a client or the types of contact (i.e. phone, in-person, in-court, etc.) Frequency of contact and type of contact data was not made available to the researcher due to how, if at all, the information was recorded.

Only two of the three clinics used the intensity variable in a reliable way, namely, the Family Law and Domestic Violence Clinic and the Mattapan Initiative. The meaning and usage of the variable by the Predatory Student Lending Clinic varied substantially over the period analyzed. This resulted in clinic staff and the researcher deciding that the variable was not a reasonable measure of the clinic’s involvement with users. No data related to intensity of involvement is provided for the Predatory Student Lending Clinic for this reason.

In *Table 10*, I present a table that shows the level of the Family Law and Domestic Violence Clinic’s involvement with service users. In *Table 11*, I present a similar table that shows the level of involvement of the Mattapan Initiative with service users.

**Table 10.** A table detailing Family Law and Domestic Violence Clinic users by level of involvement.

	<b>Count</b>	<b>Percent</b>
Low Involvement (1)	73	46%
Medium Involvement (2)	31	19%
High Involvement (3)	56	35%
Mean	1.9	NA
Mode	Low Involvement	NA
Known Involvement	160	98%
Unknown Involvement	3	2%

**Table 11.** A table detailing Mattapan Initiative users by level of involvement.

	<b>Count</b>	<b>Percent</b>
Low Involvement (1)	38	49%
Medium Involvement (2)	30	38%
High Involvement (3)	10	13%
Mean	1.6	NA
Mode	Low Involvement	NA
Known Involvement	78	100%
Unknown Involvement	0	0%

### ***7.2.1.2. Generating a Typology of Service Users***

The descriptive statistics that I presented provide a general picture of the types of people who use the services of each of the three clinics. Summarizing the data does not, however, offer many insights into whether and how users might be grouped together. Summary statistics neither allow for all the user attributes to be considered simultaneously nor can

they account for the overall structure of the data set and the interrelations of the data points.

I used cluster analysis techniques to identify the ways the administrative data was structured and how individual records could be grouped with like records. I clustered each clinic’s data separately. Just as some of the descriptive statistics related to the clinic cannot be compared between clinics, cluster solutions are only valid within an individual clinic.

The attributes used in the cluster analysis were of mixed data types and included nominal, ordinal, and continuous data. In *Table 12*, I list each of the attributes that I used in the cluster analysis and each attribute’s data type.

**Table 12.** A table detailing attributes included in the cluster analysis.

Attribute	Data Type
Age	Continuous
Race/Ethnicity	Categorical - Nominal
Lead attorney for case	Categorical - Nominal
Distance of residence from LSC-HLS (square root transformation)	Continuous
Legal issue	Categorical - Nominal
Level of LSC-HLS involvement*	Categorical - Ordinal

\*Note: Attribute only used for Mattapan Initiative and Family Law and Domestic Violence Clinic

I used the hierarchical agglomerative cluster algorithm with average linkages implemented in the STATA 5 statistical software package to cluster the data (StataCorp, 2013). As the algorithms input, I calculated a Gower (dis)similarity matrix for the dataset using the *daisy* tool in the *cluster* package of the R statistical software environment (Everitt, Landau, Leese, & Stahl, 2011; Maechler, Rousseeuw, Struyf, Hubert, & Hornik, 2013; R Development Core Team, 2008).

The clinics' managers and I settled upon the ideal cluster solution for each clinic after a review of the various possible cluster solutions. We selected the ideal cluster solution using three criteria. The first criterion was that the ideal cluster solution be supported by statistical measures of cluster appropriateness. In particular, we used the Calinski-Harabasz pseudo-F statistic of the cluster solution and visual analysis of the clustering dendrogram to evaluate the statistical appropriateness of the cluster solutions (Anderberg, 1973; Everitt et al., 2011).

Second, the ideal cluster solution should produce clusters that were deemed to be reasonable groupings in accordance with each clinic's managing attorney's local knowledge. This criterion was implemented through discussion about possible cluster solutions with the managing attorney of each clinic.

Third, the ideal cluster solution should produce a sufficiently large number of clusters to allow for additional investigation but not such small clusters that it was unlikely that we would be able to interview users that matched the cluster's characteristics. For instance, solutions that resulted in a high number of small clusters or solutions that resulted in a small number of large clusters containing a diverse mixture of clients were disfavored. We obtained an ideal cluster solution for each clinic by applying these three criteria.

After deciding upon the ideal cluster solution for each clinic, I applied one condition to the ideal solution. Individual clusters with small memberships relative to the clinic's size were dropped. For instance, if the ideal cluster solution for a clinic was four clusters but one cluster only had one member, the singleton cluster was discarded and the cluster solution was treated as if it only contained three clusters.

The ideal cluster solution for the Family Law and Domestic Violence Clinic had four groups of clinic users.<sup>13</sup> The first cluster ( $n=102$ ) was middle-aged (between 35 and 50 years old), Hispanic or Latino females who lived fairly close to LSC-HLS ( $< 10$  miles), whose issue was divorce, and with whom the clinic had either a high or low level of

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<sup>13</sup> The actual size of the cluster solution was six. Two clusters were eliminated due to small size ( $n=2$  and  $n=3$ ).

involvement. The second cluster ( $n=35$ ) was young (between 22 and 30 years old), African American or Black and Hispanic or Latino females who live fairly close to LSC-HLS (<10 miles), whose legal issue was related to custody, and with whom the clinic had a low level of involvement. The third cluster ( $n=17$ ) was young middle-aged (between 30 and 45 years old), White and Hispanic or Latino females who lived close to LSC-HLS (<5 miles), whose legal issue was related to domestic abuse, and with whom the clinic had a high level of involvement. The fourth cluster ( $n=4$ ) was younger (between 30 and 35 years old) females who live close to LSC-HLS (< 5 miles), whose legal issue was related to divorce, paternity, or visitation, and with whom the clinic had a medium level of involvement.

The ideal cluster solution for the Mattapan Initiative grouped the clinic's users into four groups. The first cluster ( $n=3$ ) was middle-aged to older (between 45 and 60 year old) persons who lived relatively far from LSC-HLS (between 20 and 30 miles) and with whom the clinic only had limited involvement. The second cluster ( $n=42$ ) was females who lived close to LSC-HLS (< 5 miles) and with whom the clinic had a limited involvement. The third cluster ( $n=11$ ) was middle aged (between 42 and 57 year old), African American or Black men who lived close to LSC-HLS (< 5 miles), and with whom the clinic had a high level of involvement. The fourth cluster ( $n=22$ ) was middle aged (between 32 and 56), African American or Black persons who lived in the Mattapan neighborhood, and with whom the clinic had either a medium or high level of involvement.

The ideal cluster solution for the Predatory Student Lending Clinic grouped the clinic's users into 6 clusters. The solution for this clinic had both the largest number of clusters and the largest number of clusters dropped due to small cluster size.<sup>14</sup> The first cluster ( $n=37$ ) was middle aged to older (between 45 and 69 years old), African American or Black females who lived close of LSC-HLS (<5 miles). The second cluster ( $n=14$ ) was White females who lived close to LSC-HLS (<5 miles). The third cluster ( $n=13$ ) was middle aged (between 30 and 45), Hispanic or Latino females who either lived close to LSC-HLS (< 5 miles) or a medium distance from LSC-HLS (between 10 and 17 miles). The fourth cluster ( $n=14$ ) was middle aged to older (between 37 and 62 years old),

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<sup>14</sup> A total of seven clusters that included only one, two, or three users were eliminated.

African American or Black males who lived close of LSC-HLS ( $< 5$  miles). The fifth cluster ( $n=7$ ) was young to middle aged (between 25 and 55 years old), White males who lived a medium distance from LSC-HLS (between 5 and 15 miles). The last cluster ( $n=8$ ) was young (between 25 and 35 years old) females of race “Other” who lived fairly close to LSC-HLS (between 5 and 10 miles).

In *Table 13*, I present summary descriptions of the cluster solutions and the size of the individual clusters for each of the three clinics.

**Table 13.** A table detailing cluster descriptions and cluster sizes by clinic.

<b>Clinic</b>	<b>Cluster Description</b>	<b>Size</b>
Family Law and Domestic Violence Clinic	Middle-aged, Hispanic or Latino females who lived fairly close to LSC-HLS, whose issue was divorce, and with whom the clinic either had a high or low level of involvement.	102
Family Law and Domestic Violence Clinic	Young, African American or Black or Hispanic or Latino females who lived fairly close to LSC-HLS whose legal issue was related to custody with whom the clinic had a low level of involvement.	35
Family Law and Domestic Violence Clinic	Younger middle-aged, White and Hispanic or Latino females who lived close to LSC-HLS, whose legal issue was related to domestic abuse, and with whom the clinic had a high level of involvement.	17
Family Law and Domestic Violence Clinic	Younger females who lived close to LSC-HLS, whose legal issue was related to divorce, paternity, or visitation, and with whom the clinic had a medium level of involvement.	4
Mattapan Initiative	Middle-aged to older persons who lived relatively far from LSC-HLS and with whom the clinic had limited involvement.	3
Mattapan Initiative	Females who lived close to LSC-HLS and with whom the clinic had a limited level of involvement.	42
Mattapan Initiative	Middle aged, African American or Black men who lived close to LSC-HLS with whom the clinic had a high level of involvement with.	11
Mattapan Initiative	Middle aged, African American or Black persons who lived in the Mattapan neighborhood with whom the clinic has medium to high levels of involvement.	22
Predatory Student Lending Clinic	Middle aged to older, African American or Black females who lived close of LSC-HLS.	37
Predatory Student Lending Clinic	White females who lived close to LSC-HLS.	14
Predatory Student Lending Clinic	Middle aged, Hispanic or Latino females who either lived close to LSC-HLS or a medium distance from LSC-HLS.	13
Predatory Student Lending Clinic	Middle aged to older, African American or Black males who lived close of LSC-HLS.	14
Predatory Student Lending Clinic	Young to middle aged, White males who lived a medium distance from LSC-HLS.	7
Predatory Student Lending Clinic	Young females of race “Other” who lived fairly close to LSC-HLS.	8

### **7.2.1.3. Conclusion – Administrative Data Exploration Part**

The information generated via the Administrative Data Exploration Part of the I2S2A method's Description and Appreciation Phase uncovered information about the types of users that the three clinics served. Below, I summarize the outputs that I generated during this part of the I2S2A method.

The clearest observations stemming from the Administrative Data Exploration Part are about the people who use the services of the three clinics. Service users are predominantly females of color who resided within ten miles of LSC. Service users were, on average, in their late thirties or early forties although some service users were much older (early-eighties) or younger (mid-twenties).

Women were the predominant users of all three clinics. The Mattapan Initiative and Predatory Student Lending Clinic had a more even ratio of male to female users while the Family Law and Domestic Violence Clinic served almost exclusively women. The users of all three clinics were predominantly people of color. Users of the Mattapan Initiative and the Predatory Student Lending Clinic were predominantly African American or Black. The largest racial/ethnic group served by the Family Law and Domestic Violence Clinic was persons who identified as Hispanic or Latino. Users of the Mattapan Initiative were, on average, older than the users of the other two clinics although all clinics tended to serve persons in their late thirties or early forties. All three clinics typically served persons within the areas adjacent to LSC-HLS's location. This geographic reach of the clinics generally coincided with the areas where persons who might need LSC-HLS's services reside.

The Administrative Data Exploration Part provided limited insights into the operations of the clinics. For instance, the data only partially supported an investigation into the specific types of issues the clinics assist people with beyond the general practice area of the clinic. This fact stems largely from the types of legal issues from which staff may select (i.e. non-exclusive categories and catch-all categories) in LSC-HLS's case management system.



The activities of this part, however, did produce several possible avenues of investigation for subsequent phases of this study. For instance, the typology indicated that service users varied substantially by race and residence distance from LSC-HLS suggesting that these attributes might be relevant to understanding why and how people use LSC-HLS's services. In the next part of the Description and Appreciation Phase, I use service user and provider interviews to explore whether the user attributes that I identified in this part are indeed relevant to how and why people use LSC-HLS's services.

### ***7.2.2. Part 2 of Phase 1 - Exploration of Provider and User Experiences***

The purpose of the Exploration of Provider and User Experiences Part of the Description and Appreciation Phase is to enable the researcher to gain an understanding of the factors and causal mechanisms that impact realized accessibility. I accomplished this by conducting in-depth, semi-structured interviews with users of the three clinics in addition to interviewing clinic managing attorneys (manager attorney interviews:  $n=4$ , user interviews  $n=15$ ). I analyzed the interviews and generated multiple themes about the factors and causal mechanisms that mediate the usage of civil legal services. I used these themes as inputs for the Integration and Retrodution Phase to generate explanations of how and why people use LSC-HLS's services.

The Exploration of Provider and User Experiences Part consists of three activities, (1) the Learning about Experiences of Service Provision, Need, and Usage Activity, (2) the Analysis of Provider and User Experiences Activity, and (3) the Generation of Themes of Service Accessibility Activity. These activities allow the researcher to understand the reasons, individual characteristics, and the contexts that explain why people use LSC-HLS's services.

I conducted interviews with fifteen LSC-HLS service users in addition to conducting four interviews with clinic managing attorneys. The user interviews were semi-structured and averaged forty five minutes in length. Some users wanted to share their experiences in detail resulting in a subset of user interviews that lasted several hours each. The semi-structured interviews with clinic managers were thirty minutes long.

The user interviews covered the following topics: (1) a user's understanding of the legal problem and the impact the problem had on their lives, (2) the decision to and process of seeking help, (3) the experience of working with LSC-HLS, (4) travel behavior including travel to LSC-HLS and typical daily travel routines, and (5) general demographic information. I asked clinic managers to talk about (1) the type of persons that their clinic serves, (2) the types of legal issues of users, (3) the clinic's objectives, (4) the lawyering philosophy that motivates the clinic's practice, and (5) the reasons for each clinic's substantive focus. Provider interviews provided background information and context about the three clinics. In contrast, I analyzed user interviews to understand what factors and causal mechanisms mediate how and why people use LSC-HLS's services.

#### **7.2.2.1. Interviewee Selection, Recruitment, and Sample Limitations**

I selected to interview clinic managing attorneys, as opposed to other clinic staff, using a key informant interviewee selection strategy. Clinic managing attorneys possessed unique knowledge of clinic operations and history. They are also responsible for shaping how the clinic serves users, what types of users the clinic serves, and the clinic's substantive practice area.

I used a purposive sampling strategy to select which users to interview. Specifically, I sought to interview users across the applicable user typology for each clinic which was generated in the Administrative Data Exploration Part.

Users were recruited via an informational letter describing the study and its purpose. The recruitment letter was sent to every user in the data extract used in the Administrative Data Exploration Part that had a valid mailing address associated with the record. Clinic staff also contacted all persons to whom a recruitment letter was sent approximately two weeks after the initial recruitment letter in order to follow-up with the person.<sup>15</sup>

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<sup>15</sup> How a clinic followed up with potential study participants was at the sole discretion of clinic managers. Two of the three clinics performed a telephone follow-up. The clinic manager of the clinic that decided not to follow-up with persons via telephone concluded that such follow-up could coerce clinic users to engage in the study and instead decided to send users a follow-up letter.

There are three issues related to the user interview sample to note. These three issues are (1) who the sample included, (2) the potential impact of selection bias on the interview data, and (3) what generalizations can be made about service usage from the sample.

First, the interviewee sample is only of service users. The interviews elicited information about the experience of service usage and how the interviewee moved from being a potential user to an actual user. Information from the interviews cannot support inferences about why members of the potential user population do not use a service. Information from the interviews can, however, support inferences about the processes that impact service usage and how and why a person who used the service moved from being a potential user to an actual user.

Second, selection bias could have impacted both the content of the collected data and the validity of inferences from it. The issue of sample bias is often raised as a fatal weakness of non-random sample selection and or of certain small-*n* sample selection methods. As some researchers have noted, however, this view is largely informed by a researcher's conception of the ontology and epistemology of the social world. Selection bias has a different import for research that understands the social world as "complex, characterized by ... interaction effects, ... and equifinality (many different paths to the same outcome) or multifinality (many different outcomes from the same value of an independent variables, depending on context) (Bennett & Elman, 2006).

Selection bias could impact the types of causal mechanisms uncovered in this research. Specifically, any understandings about civil legal service usage and the causal mechanisms that mediate it generated by this study are fallible and likely partial. Other causal mechanisms could mediate civil legal service usage and only some of the contexts in which the identified causal mechanisms operate are identified.

Lastly, the interview sample does not support generalizations about the population of people who use LSC-HLS's services. The sample can be used, however to uncover some of the causal mechanisms that impact service usage and how these causal mechanisms operate in specific contexts. Understandings of these causal mechanisms, however, are not generalizable to the entire user population nor can they support the prediction of user

behavior. This fact is not the result of a flawed method. Rather socio-spatial entanglement theory and the I2S2A method are rooted in the position that the social world and our understanding of it never function in a fashion that allows for such broad generalizations or prediction premised on neo-Humean causal deduction.

In *Table 14*, I present a table showing the count of user interviews by clinic.

**Table 14.** A table detailing user interviews by clinic.

	Count	Percent
Family Law and Domestic Violence Clinic	5	33%
Mattapan Initiative	1	7%
Predatory Student Lending Clinic	9	60%
Total	15	100%

### **7.2.2.2. Interview Method, Process, and Data Analysis**

In this sub-section, I outline the process that I used to develop the service user interview protocol and the method I used to code the user interview data. In the next sub-section, I discuss the themes of realized accessibility that I developed using the information produced via the process described in this sub-section.

The interview and coding process consisted of eight steps. I used the MAXQDA qualitative data analysis and coding software program to implement the process (VERBI, 2015). I describe the eight steps in in sequential order to facilitate reader understanding of the process. However, there was substantial iteration and movement between the activities resulting in what was, in practice, a non-linear and iterative analysis process.

#### *7.2.2.2.1. Step 1: Interview Protocol Development*

The service user interview protocol elicited information about five topics. First, it elicited information about a user’s understanding of the legal problem and the impact the problem had on their lives. Second, it included questions about a user’s decision to and process of seeking help. Third, it elicited information about a user’s experience with LSC-HLS. Fourth, it included questions about a user’s travel behavior including travel to LSC-HLS

and typical daily travel routine. Lastly, the protocol elicited user demographic information. The topics covered topics that researchers have identified as relevant to realized accessibility (i.e. travel behavior, demographic characteristics, etc.) in addition to exploring the lived-experience of needing and seeking legal assistance.

#### *7.2.2.2.2. Step 2: Protocol Testing*

I tested the interview protocol with several clinic users. The protocol (1) elicited the type of information needed for the research and (2) the protocol facilitated a productive interaction with the interviewee. I did, however, make changes to the protocol related to question phrasing due to the testing results.

#### *7.2.2.2.3. Step 3: Service User Interviews*

I conducted in-person and telephone interviews. In all instances, the users interviewed were (1) users of one of the three clinics and (2) their service usage partially overlapped with the time period analyzed in the Administrative Data Exploration Part.

#### *7.2.2.2.4. Step 4: Protocol Refinement*

I revised the protocol as I interviewed more users. These revisions clarified interview questions that some interviewees had difficulty understanding and involved altering/adding questions as new or reformulated research topics emerged from my ongoing analysis of the interview data.

#### *7.2.2.2.5. Step 5: Interview Transcription*

Interview recordings were transcribed soon after the interview was completed. All references that could personally identify the interviewee were removed from the recording prior to transcription.

#### *7.2.2.2.6. Step 6: Development of a Formal Code Dictionary and the First Round of Coding*

I developed a formal coding scheme to categorize the content of the interviews. By formal, I simply mean that the coding scheme and the assignment of codes to interview segments was based solely on what was said as opposed to the meaning of what was said. In *Table 15*, I provide the formal codes with which all interviews were coded.

**Table 15.** A table detailing the formal code dictionary.

<b>Code Category</b>	<b>Code</b>
Demographics	Language
Demographics	Residence location
Demographics	Duration of residence in Boston-area
Demographics	Government benefits
Demographics	Employment
Demographics	Education
Demographics	Household composition
Demographics	Race
Demographics	Disability
Demographics	Gender
Demographics	Age
Problem	Description of issue
Problem	Why issue of concern
Problem	Description of severity of issue impact on life
Problem	Statements about why pursuing issue
Involvement with LSC-HLS	Scope of representation
Involvement with LSC-HLS	Duration of representation
Involvement with LSC-HLS	Intensity of engagement with LSC-HLS
Involvement with LSC-HLS	Other options for assistance
Involvement with LSC-HLS	Value statements about the services provided by LSC-HLS
Involvement with LSC-HLS	Which staff members interacted with
Involvement with LSC-HLS	Value statements about interactions with LSC-HLS
Involvement with LSC-HLS	Value statements about LSC-HLS staff
Involvement with LSC-HLS	Mode of communications with LSC-HLS staff
Involvement with LSC-HLS	Preferences of mode of communicating with LSC-HLS staff
Involvement with LSC-HLS	How learned about LSC-HLS
Travel Behavior	Number of visits to LSC-HLS
Travel Behavior	Length and duration of trip(s) to LSC-HLS
Travel Behavior	Method of travel to LSC-HLS
Travel Behavior	Trip chaining when visiting LSC-HLS
Travel Behavior	Primary method of daily travel
Travel Behavior	Time constraints on daily mobility
Travel Behavior	Vehicle ownership

#### *7.2.2.2.7. Step 7: Holistic Interview Memoranda Writing*

In recognition of the fact that the formal coding of the interview transcripts only partially uncovered the information shared by service users, I wrote memoranda describing the main issues and themes when the interview transcript was read holistically. I wrote these memoranda for a subset of the transcripts ( $n=5$ ). Transcripts were selected to write memoranda on randomly from the set of user interviews although at least one memorandum was written for an interview with a user from each clinic. These memoranda served as a “first step” towards moving beyond the information generated via the application of the formal coding scheme.

#### *7.2.2.2.8. Step 8: Synthesis of Holistic Memoranda*

In this step, I identified concepts that existed across the holistic memoranda and how these shared themes and concepts nested within larger themes. This process of synthesis, interpretation, abstraction, and corroboration served as the foundation for subsequent data analysis.

#### *7.2.2.2.9. Step 9: Development of Substantive Code Dictionary and Recoding of Interviews*

Based on the synthesis of the holistic interview memoranda, I developed a substantive coding scheme. By substantive, I simply mean that the various codes (and how they were applied) shifted from categorizing the content of the interviewee statements (formal codes) to describing how interviewee statements expressed various themes and concepts identified via the synthesis of the holistic memoranda.

I identified concepts from the interview data that (1) were important to users, (1) which impacted service usage, and or (3) were relevant to the general process of service usage. These concepts were developed through an iterative process of reading and rereading and coding and recoding the interview transcripts. I also drafted and iterated through revisions of memoranda describing these concepts.

The concepts were (1) the preconditions of service usage, (2) reasons for service usage, (3) reasons for satisfaction or dissatisfaction with service usage, (4) user vulnerabilities, and (4) motivators and inhibitors of service usage. Within each concept, I created specific codes related to the concepts. In *Table 16*, I present the substantive code dictionary and

how the codes nested within the five concepts. All interviews were coded a second time using the substantive codes.

**Table 16.** A table detailing the substantive code dictionary.

Concept	Code
Precondition of service usage	Problem identification
Precondition of service usage	Knowledge of service
Precondition of service usage	Ability to travel and access to means of travel
Reason for service usage	Resolve own issue
Reason for service usage	Address extra-individual wrongs
Reason for satisfaction and dissatisfaction with service usage	Humanizing process
Reason for satisfaction and dissatisfaction with service usage	Outcome/process – benefits self
Reason for satisfaction and dissatisfaction with service usage	Outcome/process has potential to help others
User vulnerabilities	Education
User vulnerabilities	Housing
User vulnerabilities	Financial/employment
User vulnerabilities	Other (i.e. safety, health, etc.)
Motivators and barriers to service usage	Issue important to self
Motivators and barriers to service usage	Extra-individual framing
Motivators and barriers to service usage	Comfort with travelling
Motivators and barriers to service usage	Time flexibility

### ***7.2.2.3. Themes of Realized Accessibility***

In this sub-section, I describe each of the three themes and the various concepts and conditions which are embedded in each theme. The three realized accessibility themes are



(1) user vulnerabilities, (2) motivators and inhibitors of usage, and (3) necessary preconditions of usage.

In the next phase of the I2S2A method, the Integration and Retroduction Phase, I hypothesize how these themes impact each other and the ways in which these themes impact how people use the services of LSC-HLS. During this phase of the I2S2A method, however, my only aim is to isolate and describe the themes related to realized accessibility that I identified from the user interview data.

#### **7.2.2.4. User Vulnerabilities**

Interviewees exhibited a variety of vulnerabilities. These vulnerabilities impacted users in a variety of ways including whether the user identified a problem as legal, the potential impact of the problem on their life, and the user's ability to engage in ongoing use of LSC-HLS's services.

There are five types of user vulnerabilities that are particularly relevant to how interviewees used LSC-HLS's services. These vulnerabilities are (1) housing vulnerabilities, (2) financial vulnerabilities, (3) knowledge vulnerabilities, (4) health vulnerabilities, and (5) safety vulnerabilities.

##### *7.2.2.4.1. Housing Vulnerabilities*

A user's legal problem often exposed the user to severe housing instability. For instance, many interviewees stated that if the legal issue was not resolved they would be unable to pay rent and would be forced to stay on the couches of family and or friends. The majority of interviewed users of the Predatory Student Lending Clinic who experienced housing instability fell into this group. These users feared the potential of not being able to pay rent as opposed to experiencing the actuality of housing instability.

In contrast, interviewed users of the Family Law and Domestic Violence Clinic often experienced actual housing instability during service usage. These users often shared a home with the abuser; needed to leave this home for safety reasons prior to divorce or other legal proceedings; and did not have the resources to secure other housing. Such persons often ended up in shelters for survivors of domestic violence. One interviewee

explained this lack of available housing options succinctly, “...*I didn't have anybody at all...and so the only option that I really had was to go to a shelter.*”

Shelter placements, however, due to the conditions of such shelters and or the duration that a person/family was allowed to stay in the shelter, only offered short-term housing stability and the impending effects of future housing instability caused interviewees substantial stress. This was in addition to the emotional and financial stresses associated with separating from an abusive partner while supporting one's self and or supporting one's family.

#### *7.2.2.4.2. Financial Vulnerabilities*

Most interviewees exhibited some form of financial instability. In some cases, this instability was partially caused by their legal problem. For instance, users of the Predatory Student Lending Clinic often took on substantial educational debt. The institutions they attended, however, often did not actually better their earning potential but instead made their financial situation more tenuous by adding debt burden. One user of the Predatory Lending Clinic described this phenomenon well,

*“I finished the program and the thing that was upsetting was that the school I was already working a job at the time that was paying me twelve dollars an hour and then it was trying to offer me a job that was paying ten dollars an hour and I'm like, “Well, why did I come to the school?””*

The financial vulnerability of most interviewed users of the Predatory Student Lending Clinic was exacerbated by their legal problem although their tenuous financial stability often preceded the occurrence of their legal problem. For instance, one interviewee was unable to work before she enrolled in school due to an underlying disability and another person's family was struggling financially due to their employment being dependent upon specific economic sectors. Similarly, many interviewees either were on fixed-incomes or had employment histories that involved low-paid jobs and episodic employment.

In contrast, the financial stability of users of the Family Law and Domestic Violence Clinic was often caused by their legal issue and users tended to be reasonably financially stable prior to their legal problem. Many interviewees stated that their households were financially stable prior to the decision to leave their abuser. All interviewees expressed the

stresses and difficulties associated with supporting a family in the face of changed household composition.

The difficulty of the change of income was often compounded by the fact that the user was compelled to find new employment. In some cases, continuing with a previous employer was dangerous because the abuser knew the employment location. The financial instability experienced by these interviewees was directly related to having to alter their lives in an attempt to separate from their abuser. Further, the instability was a major source of concern as users continued to use the service of LSC-HLS and even after all legal proceedings had concluded.

#### *7.2.2.4.3. Knowledge Vulnerabilities*

Several interviewees stated that, at the time that their problem occurred, they lacked knowledge of the legal system. Interviewees frequently explained that they did not know that there was a legal recourse for their problem. Rather, users often only had a general feeling that they had somehow been wronged or treated unfairly. It was only by contacting friends, family, or other service providers that they learned that their problem was a legal problem.

The level of knowledge vulnerability was correlated with interviewees' educational attainment. Users who had at least some college education quickly realized that their issue was a legal problem. In contrast, users with lower levels of education often struggled to identify their issue as a legal problem.

#### *7.2.2.4.4. Health Vulnerabilities*

Many interviewees had health vulnerabilities which made using LSC-HLS's services more difficult. Health vulnerabilities included physical and emotional conditions that made travel to LSC-HLS and or interactions with the LSC-HLS staff difficult. Physical health vulnerabilities were most prevalent amongst elderly service users. Although health issues were prevalent amongst these users, elderly users with physical health issues were generally experienced with navigating the Boston-area effectively. They coped with their impairments using strategies ranging from planning for lengthened travel time; using public transportation; or only travelling when conditions were amenable to their physical abilities.

Far fewer younger users identified health vulnerabilities as impacting their usage of LCS-HLS's services. However, younger interviewees with health vulnerabilities reported having difficulty dealing with their health problems as they used services and they were constantly engaged in the process of learning how to navigate the area. Rather than already knowing how to use a service in light of their condition, younger users reported learning how to use the service as they were doing so. This often increased the stress of using the service.

#### *7.2.2.4.5. Safety Vulnerabilities*

Almost all interviewed users of the Family Law and Domestic Violence Clinic, but not users of the other two clinics, had substantial concerns about their personal safety. For some interviewees, safety concerns did not appear to impact service usage with the exception that all users stated that attending court dates was difficult,

*“Having to go before a judge [was] very stressful and nerve-wracking and scary.”*

That being said, safety concerns were cited by all interviewed users of the Family Law and Domestic Violence. However, many users continued to use the clinic despite these concerns.

In some cases, fear persisted after the separation from the abuser and substantially impacted the interviewee's locational choices and geographic mobility,

*“I fled from Boston... I'm still being victimized. I'm still getting threats. I still fear for my life. I don't know when it is going to be like, “okay, I don't have to run anymore, I don't have to hide anymore,” and especially when you have children.”*

*“I'm afraid to be on the streets walking.”*

Some users' safety concerns had a larger impact on their everyday activities, including how they dealt with their legal problem. For instance, one interviewee was unable to go to a region in the Boston-area and was thus unable to achieve a full resolution of her legal problem,

*“I have panic attacks if I go. If anyone’s trying to take me up there, I can’t go up there. It just brings back a lot of what I went through and everything.”*

Another interviewee frequently cancelled appointments because she was afraid to leave the house,

*“There were many appointments that I missed, so I would call and say, “Listen, I don’t think it’s safe for me to go out today.””*

That person’s concerns for safety drove her to go so far as disguising herself when she left her residence,

*“I was always covered up. Dark glasses, wore a wig, wore something over my head, and wore clothes that I usually don’t wear, so I was always dressed up differently.”*

Safety vulnerability can profoundly impact the lives of service users and present challenges to service usage and daily life activities. It is difficult to do justice to the extent to which these survivors of domestic violence experienced safety vulnerabilities. My description of their experiences as a realized accessibility theme necessarily abstracts from the reality of living in fear.

#### **7.2.2.5. Motivators and Inhibitors of Service Usage**

In addition to user vulnerabilities, a set of factors that impacted service usage emerged from the data. These factors included (1) how the user frames their problem, (2) user usage experiences, (3) user time flexibility, and (4) user comfort with travelling. All of these factors can motivate a user to overcome barriers to service usage or, under different circumstances, make overcoming the barriers to usage more problematic. In this subsection, I discuss the five factors which can act to motivate or inhibit service usage.

##### *7.2.2.5.1. Problem Framing*

Interviewees framed their problem and its importance in two ways. One set of users framed their problem and its importance as being relevant primarily to their own individual circumstances. For instance, several users of the Predatory Student Lending Clinic, when explaining their problem, talked about how fixing their problem would make them more financially stable and more able to cover various expenses. For instance, one interviewee framed her problem solely in terms of her earning power,

*“I was ... upset because it’s like I finish this program, thinking I was just going to get a nice pay. I was at least expecting to get paid [the same amount as I was already earning]. Yeah. So I was like, “why am I going to finish paying if they’re trying to offer me a job that pays [less]?””*

Another interviewee described his problem as being solely related to his personal creditworthiness,

*“...just try to fix my credit, hard time using credit cards. I mean, see if I can fix it [my credit] to buy a home soon.”*

Other interviewees framed their problems as being connected to extra-individual matters such as fairness, society, protecting others, or family. In most cases, these users also spoke of how their problem impacted them as individuals but they tended to only mention this dimension of their problem in passing. How users framed their problem in extra-individual terms varied. Some interviewees framed their problem in terms of fairness and right and wrong,

*“He’ll sit there and look you in the face and lie, and he’s making your losing a religion. He’s a no good, self-centered, money hungry fool, and they are going to let this guy roll out from under what he did.”*

*“They shouldn’t be doing that. Do you see what I mean? If they’re going to, they have to keep their word and give tutoring and do what they said...”*

*“All they think about was try[ing] to rip off the people...”*

Other users explained that their problem needed to be redressed to protect other persons from suffering the same problem,

*“My whole thing was to get the school off of that list [so others wouldn’t be taken advantage of].”*

*“...to be able to touch someone else that might be going through this as well.”*

*“If we could save one life, and then hopefully we’ll save more, but if we could save one life, then I have done something.”*

Interviewed users of the Family Law and Domestic Violence Clinic tended to frame the problem in terms of the best interests of their children,

*“..You need to make a choice on what’s healthiest and best for you and your daughter.”*

*“I felt different on a personal level that this was a serious situation and serious decisions need to be made...I had to think about things and make sure it’s making the right decisions for myself and my children.”*

Interviewees who framed their problem as being related to some extra-individual concern were consistently more willing to overcome barriers to service usage. In contrast, interviewees who framed their problem primarily in individual terms tended to be less willing to overcome substantial barriers to service usage.

Two examples of interviewees who framed their problems as extra-individual illustrate particularly well the willingness of users with extra-individual problem framings to overcome barriers to using a service. The first user travelled substantially outside of her normal area of activity despite having extremely limited resources; contacted several government agencies regarding her problem prior to contacting LSC-HLS; and even participated in a study related to her issue prior to contacting LSC-HLS. When I asked her about travelling to LSC-HLS, she explained that the cost and time were not relevant, *“Traffic and gas and everything else [cost], but [I dealt with this] because I wanted to be there [at LSC-HLS]...”*

The second user framed her problem as being important to her children’s wellbeing and to protecting other victims of domestic abuse. This interviewee suffered severe financial and housing instability, left multiple jobs, and moved out of the City of Boston due to her problem. Despite the ongoing ordeal, she continued to attempt to resolve her issue by contacting various agencies and even attempting to learn how she could represent herself in legal matters related to her problem.

It is difficult to precisely define how problem framing mediates service usage. Extra-individual problem framing was a motivator for service usage. In some instances, the extra-individual framing occurred during the course of representation, in which case it is a motivator for continued usage. Other interviewees already framed the problem in extra-individual terms prior to service usage. In these cases, extra-individual problem framing is

both a motivator for the initial contact with the service provider and, presumably, for continued usage.

The effect of primarily individual problem framing on service usage is less clear. Based on the interview data, it would be reasonable to posit that an individual problem framing might not affect service usage. There is, however, some evidence to suggest that a solely individual problem framing may inhibit service usage. The data that supports this position is, at best, circumstantial. For instance, the fact that few interviewed users framed their problem in solely individual terms might suggest that such people only rarely have the motivation to overcome the barriers to service usage. However, the dearth of persons with this type of framing might simply be due to the fact that persons with extra-individual problem framings were more willing to participate in this study. Further research is needed to tease out the role of individual problem framing on service usage. However, this research supports the conclusion that extra-individual problem framing can motivate persons to use a service.

#### *7.2.2.5.2. Experience Using the Service*

A user's experience with service usage is another factor that mediates service usage. In this case, service usage refers not to the initial contact but rather the user's ongoing usage of the service. For some types of services, ongoing service usage is inapplicable. For instance, if a person uses a medical screening service that does not require follow-up visits, it makes little sense to focus on ongoing usage motivators and the researcher's focus can be limited to the initial contact. However, in the case of civil legal services, it is relatively rare that a user's issue, assuming the provider takes the case, requires only one contact.

Many interviewees explained that the process of using a clinic's services was a humanizing process and that this aspect of the process was important to their satisfaction with the service. The primary things users identified as being humanizing were the ways in which they felt understood, heard, and supported,

*“Emotionally for me I felt [that] someone was listening to me and trying to do something about it.”*

*“So I feel that that group, the Legal Services [Center], was an absolute godsend because I had someone who listened.”*



*“It was actually quite therapeutic to be heard in that way and [LSC-HLS staff were] very non-judgmental about my personal circumstances.”*

*“They [LSC-HLS] definitely helped me feel more empowered. I felt like things are going to be okay. I saw a light at the end of the tunnel.”*

For interviewees, the humanizing process of representation often stood in sharp contrast to how they felt other agencies and legal actors treated them. As one interviewee stated, the process of seeking help and dealing with the legal system was often traumatic; *“[I was] being victimized over and over and over again not only by police [who I called for help] but courts and the attorneys.”*

Interviewees reported that the humanizing aspect of how the clinics provided civil legal services encouraged them to continue using the clinic’s services. Additionally, a large number of interviewees cited the humanizing process of obtaining services from the clinics as the major reason for their satisfaction.

#### *7.2.2.5.3. Time Flexibility*

All users of the clinics were obviously able to fit visits to LSC-HLS staff into their daily schedules. However, the flexibility in interviewee daily schedules impacted how and when they used LSC-HLS’s service. Further, small changes in time flexibility often made using the clinic far more difficult and users’ time flexibility was highly contingent on factors outside their control. For instance, a new manager at work, a new job, or changes in childcare availability were factors that could substantially change a user’s time flexibility but that were outside the user’s control.

#### *7.2.2.5.4. Comfort with Traveling*

Almost all interviewees were comfortable travelling to LSC-HLS. Further, most users travelled in the greater-Boston area to accomplish daily activities such as commuting, shopping, and accessing services like public libraries. The most common modes of transportation interviewees used to get to LSC-HLS were public transportation or private car. Less common modes of transportation were walking, biking, and being transported by friends or car services (i.e. Taxi, Uber, etc.).

Although almost all interviewees expressed comfort travelling in Boston, one user found traveling to be an exceedingly stressful activity and described visiting LSC-HLS as a difficult activity. This user's experiences, although unique in the set of users interviewed, suggests that comfort with travel has the ability to impact the ease with which a user accesses a service where some physical presence is required.

#### ***7.2.2.6. Necessary Preconditions of Service Usage***

Three conditions were met in all cases of interviewee service usage. First, all interviewees identified that their problem was the type of problem that a lawyer could assist them with. Second, all interviewees were aware that LSC-HLS assisted persons with their type of problem. Lastly, all interviewees possessed the physical and mental capacity to travel to LSC-HLS and had access to some means of travel. All three conditions were necessary for service usage. The three conditions appear to create a floor to service usage.

##### *7.2.2.6.1. 1st Precondition: Problem Identification*

The first precondition of service usage is that a person identifies their problem as the type of issue that a lawyer could assist them with. In some cases, a problem is readily identifiable as legal based on how the person learns of the issue or how the issue is popularly understood. Divorce is an example of an issue that is generally perceived as a legal matter for which legal assistance is of use. In other cases, the type of problem involves the court or the opposing party notifying the person that a legal proceeding has been initiated against them. An example of such an action would be an eviction. In such a matter, the notice from the court or opposing party informs the person that the issue is a legal problem and the notice may, in some case, inform the person that they should consider speaking to a lawyer.

Other types of issues are not easily identifiable as issues that a lawyer could provide assistance with. For instance, absent substantive knowledge of the law, persons may neither be aware that unfair lending laws regulate student loans nor that administrative remedies may be available to lessen loan servicing burdens.

#### *7.2.2.6.2. 2nd Precondition: Knowledge of Service Provider*

The second precondition of service usage is knowledge that the provider exists and provides the services needed. There are four ways that interviewees obtained knowledge of LSC-HLS: (1) referral, (2) social context, (3) professional context, and (4) outreach.

The first way interviewees learned about the services that LSC-HLS provides was via referral from another service provider. Referring providers can either be in formal partnership with LSC-HLS or merely be aware of a variety of services in the Boston-area including those of LSC-HLS. The Passageway Program at Brigham and Women's Hospital is an example of an organization that has a formal partnership with LSC-HLS (a partnership with the Family Law and Domestic Violence Clinic). Other referring agencies do not have such a formal relationship with LSC-HLS.

Referring agencies often told interviewees about LSC-HLS and also explained how a lawyer could help them with their issue. In so doing, the referring agency helped the person realize two of the three preconditions of service usage, namely, problem identification and knowledge of LSC-HLS.

The second way interviewees learned about the services that LSC-HLS provides is via their social context. Many interviewees found out about LSC-HLS by speaking with friends or family who had used the services of LSC-HLS themselves.

The third way interviewees learned about the services that LSC-HLS provides is via the professional context within which they worked. A small subset of interviewees learned about LSC-HLS from their co-workers. These users worked for or volunteered with legal or social service providers. Interviewees who learned about LSC-HLS this way also often identified their issue as a potential legal issue based on their professional experiences.

The fourth way interviewees learned about the services that LSC-HLS provides was via outreach by LSC-HLS, such as informational fairs or the organization's website. Of the users interviewed, this was by far the least common way people learned about LSC-HLS. Unlike the other means of learning about LSC-HLS, interviewees who learned about LSC-HLS this way either were sufficiently motivated to attend an event at which they learned

about LSC-HLS or to search the internet for legal services providers. The increased individual motivation required compared to other means of learning about LSC-HLS is one plausible explanation, among many, for the relative infrequent occurrence amongst interviewees of learning about LSC-HLS by outreach. Another possible explanation is that preexisting relationships with the person who tells the user about LSC-HLS in the cases of learning about LSC-HLS results in the user being more likely to contact LSC-HLS than persons who learn of LSC-HLS via outreach.

#### *7.2.2.6.3. 3rd Precondition: Ability to Travel to Service Provider*

The third precondition to service use is that the person be able to travel to LSC-HLS. Ability to travel, in this context, means that the person is physically and emotionally capable of travelling and can access some means of transport to travel.

#### **7.2.2.7. Conclusion - Exploration of Provider and Client Experiences Part**

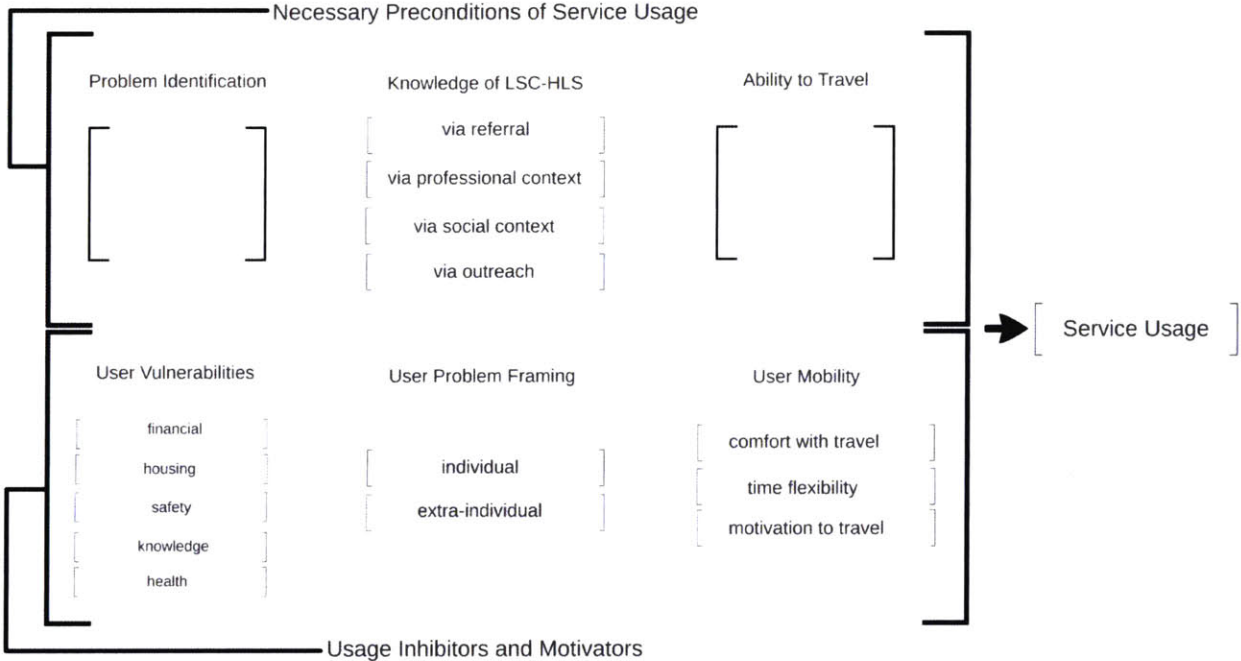
I conducted three activities during this part of the I2S2A method. The activities were centered on the collection and analysis of qualitative data from service users and providers about their experiences providing and using the services of LSC-HLS. I collected this data by conducting semi-structured interviews with providers and users.

I identified three themes about service usage from the interview data that are related to how and why people use LSC-HLS's services. The three themes are: (1) necessary conditions of service use, (2) motivators and inhibitors of service use, and (3) user vulnerabilities. I also identified several sub-themes that nest within the three larger themes. User vulnerabilities encompassed four sub-themes: (1) financial vulnerability, (2) housing vulnerability, (3) knowledge vulnerability, and (4) safety vulnerability. The motivators and inhibitors of service usage are composed of several sub-themes related to the types of things that motivate or inhibit the usage of civil legal service. These sub-themes are: (1) problem framing, (2) user usage experiences, (3) time flexibility, and (4) a person's comfort travelling. Lastly, the necessary preconditions of service usage include (1) problem identification, (2) knowledge of the services that LSC-HLS offers, and (3) a user's ability to travel.

These themes were expressed by interviewees regardless of the specific services or clinic that they used and were useful abstractions to understand the why and how the

interviewed users used LSC-HL’s services. In *Figure 29*, I present a visualization of the themes that I identified in this phase.

**Figure 29.** A diagram of the themes of service usage.



The next phase in the I2S2A method is the Integration and Retrodution Phase. In the Integration and Retrodution Phase, I will first integrate the information generated by the quantitative and qualitative parts of the Description and Appreciation Phase and then use that integrated information as the empirical basis for retroduting possible explanations of service usage.

**7.3. Integration and Retrodution Phase**

The I2S2A method’s Integration and Retrodution Phase has two goals. The first goal is to compare and combine the information about service usage generated by the quantitative and qualitative parts of the Description and Appreciation Phase. The researcher integrates the insights obtained during the two parts of the Description and Appreciation Phase thus producing a description of service usage that leverages the strengths of applying two different methods for generating information.

The second goal is to move from the integrated description of service usage to retroduting explanations of why and how people use LSC-HLS’s services. These explanations are

causal in nature and build upon but move beyond descriptions. The researcher should attempt to develop as many possible explanations that the integrated empirical information supports. In the I2S2A method's next phase, the researcher will evaluate and eliminate the explanations that she generates in this phase and settle upon a single explanation set of why and how people use civil legal services.

The I2S2A method's Integration and Retroduction Phase consists of three activities: the Service Accessibility Theme and Information Evaluation Activity, the Service Accessibility Theme and Information Integration Activity, and the Service Accessibility Explanations Generation Activity. I describe the results of these three activities in the following two sub-sections. In the first sub-section, I discuss the results of the evaluation of the quantitative and qualitative data that I generated during the two parts of the Description and Generation Phase and how these two sources of data were combined to produce an empirical basis for the next activity of this phase. In the second sub-section, I discuss the process by which I moved from the integrated empirical descriptions of service usage to generating explanations of how factors and causal mechanisms interact to shape realized service accessibility.

### ***7.3.1. Theme and Information Evaluation***

I used the information generated during the quantitative and qualitative parts of the Description and Appreciation Phase to identify and describe some of the things that shape service usage. None of the user attributes used to generate the user typologies emerged as relevant to how and why interviewees used LSC-HLS's services with the exception of the user's age. Broadly speaking, older service users experienced a greater degree of health vulnerabilities than other users. These vulnerabilities often impacted a person's ability to utilize a clinic's services. For instance, health conditions often limited winter travel and or made the use of public or private transportation difficult. That being said, the clinics generally serve a population in their 40s and older users are the exception rather than the norm.

I was unable to find any patterns in the expression of the themes of realized accessibility that I generated from the qualitative data related to the interviewee's demographic characteristics. To the contrary, users expressed similar motivations and usage patterns

across gender, age, race, proximity to LSC-HLS, and problem type. The processes which had the greatest impact on service usage were not the type of things captured in the administrative data. In light of this fact, the statistics that I developed during the Administrative Data Exploration Part provide some general context but are ultimately not very useful in explaining why and how interviewees used LSC-HLS's services.

Some readers may conclude that the I2S2A method's Administrative Data Exploration Part cannot produce the rich and potentially explanatory descriptions that the qualitative portion of the Description and Appreciation Phase due the type of data analyzed. It is, in fact, unlikely that administrative data can or will capture the rich descriptions and more nuanced experiential data that can be generated by user interviews. However, administrative data and quantitative data analysis techniques can allow the researcher to detect otherwise obscured patterns in the entire user population. I believe that my research efforts were unable to take advantage of the strengths of the Administrative Data Exploration Part primarily because of the quality of the clinics' administrative data. In particular, the incompleteness, shifting meaning, and low dimensionality of the administrative data resulted in the quantitative part of the I2S2A method only producing contextual information.

### ***7.3.2. Explanation Generation***

In this activity, my goal was to use the empirical information thus far created to generate causal explanations of service usage. In the next phase, I will evaluate these explanations and settle upon a parsimonious explanation set.

I generated possible explanations of service usage by examining how various factors and causal mechanisms could operate and interact to shape service usage. This activity is fundamentally different from the typological or thematic ordering of concepts that I did during the qualitative part of the Description and Appreciation Phase. This activity is different because rather than merely ordering concepts I attempt to explain how the concepts affect realized accessibility and how these effects are located within a larger web of causal mechanisms.

The first step in this activity was to postulate various causal mechanisms between realized accessibility factors. For instance, I generated two explanations of the relationship between problem framing and service usage. In the first explanation, problem framing tended to increase a person's motivation to overcome physical barriers to service usage. An alternate explanation of the relationship of problem framing and service usage was that the process of service usage often caused users to reframe how they understood their problem and that this reframing functioned as a post-hoc justification for a user's continuing service usage. Other causal mechanisms that I postulated related to how a person learned about the services of LSC-HLS and their motivation to use the service; how a user's experience with service usage impacted their decision to recommend the service to other persons; and how a person's time flexibility, daily activity area, and comfort with travel impacted the effort they were willing to expend to travel to LSC-HLS.

The second step in this activity was linking possible causal mechanisms together to explain service usage. For instance, rather than looking just at the relationship of problem framing and motivation to overcome physical barriers to service usage, I connected problem framing to how physical barriers can inhibit usage and, stepping back to problem framing, how problem framing is impacted by how a user learns about LSC-HLS. By connecting together causal mechanisms, I was able to develop service usage explanations.

### ***7.3.3. Conclusion – Integration and Retroduction Phase***

In this phase, I evaluated and integrated the information that I created during the Description and Appreciation Phase and used the integrated data as the basis to postulate explanations of how the web of identified causal mechanisms shapes service usage. I made two important conclusions in executing this phase. First, the value of the quantitative data that I generated during the Administrative Data Exploration Part was limited due to the incompleteness, low-dimensionality, and inconsistent meaning of LSC-HLS's administrative data. Second, I present the Integration and Retroduction Phase and as well as the next phase, the Assessment and Elimination Phase, as distinct. However, the sharp distinction between these two phases is primarily analytical. In practice, I found that I frequently would evaluate and eliminate possible causal mechanisms in the process of postulating them based on the evidence at hand. In practice, the activities of these two



phases merge together although presenting them as separate in the I2S2A method is analytically and heuristically useful.

## **7.4. Assessment and Elimination Phase**

The Assessment and Elimination Phase of the I2S2A method consists of three activities: (1) the Service Accessibility Explanation Evaluation Activity, (2) the Service Accessibility Explanation Elimination Activity, and (3) the Generation of Parsimonious Service Accessibility Explanation Set Activity. The objective of this phase is to determine which subset of realized accessibility explanations are best supported by the evidence. The explanations should also be the result of parsimonious, clear, theoretically consistent abstraction.

I evaluated each of the explanations of service usage that I generated in the previous phase and eliminated competing explanations to settle on a set of three explanations of how different sets of factors and causal mechanisms interact to shape service usage. The service user data, data from discussion with LSC-HLS staff, and the analysis of the user interview data supported the three explanations more than any of the other possible explanations that I generated in the previous phase.

In this sub-section, I initially discuss the first two activities of this phase, the Service Accessibility Explanation Evaluation and Service Accessibility Explanation Elimination activities. Next, I present the three explanations that I produced. These show the interconnections and effects of knowledge of LSC-HLS's services, user financial vulnerability, and user problem framing on the realized civil legal service accessibility.

### ***7.4.1. Realized Accessibility Explanation Evaluation and Elimination***

I will explain the refinement and elimination of possible explanations of problem framing to illustrate how the evaluation and elimination of service accessibility explanations occurred.

In the early stages of the research, I postulated that users often developed an extra-individual problem framing by interacting with clinic staff and that problem framing was not a factor that impacted whether service users used a clinic's service. As I refined the

interview protocol to probe deeper into problem framing and spoke with more service users, I uncovered evidence that many users refined their extra-individual problem framing during the service usage process but that they already framed their problem as pertaining to more than themselves prior to interacting with clinic staff. Based on this finding, I eliminated my initial postulation that user problem framing was primarily shaped by the service usage process.

Next, I investigated the variation in users' pre-existing problem framing. This investigation uncovered evidence that the strength of a user's extra-individual problem framing often motivated them to actively seek help for their problem and that individuals with extra-individual problem framings tended to be willing to invest substantial effort in the help-seeking process. Based on this finding, I postulated that the extent to which a user framed her problem in extra-individual terms (i.e. relevant to family, socially relevant, speaking to larger ideas of right and wrong) tended to be connected to a user's willingness to overcome physical barriers to service usage.

In the later stages of the user interview process, I spoke with several users who described their problems as almost solely impacting themselves (i.e. not enough money, lose home, etc.). The explanation of the impact of extra-individual problem framing was not able to account for these users' experiences. As I probed deeper into this issue, I found that persons with individual problem framings consistently exerted less effort to use the services of LSC-HLS. These persons sometimes stopped engaging with LSC-HLS if a less-involved option became available to assist them with their problem even if the other option had a potential outcome less beneficial to the user. Based on this evidence, I again revised my explanation of problem framing and postulated that the degree of extra-individual problem framing tended to relate to the physical barriers a person was willing to overcome to use a service. Further, I hypothesized that the degree to which a problem was framed as an individual problem tended to be inversely related to the physical barriers the person was willing to overcome to use a service. Although I could specify the general relationship between problem framing and overcoming physical barriers to service usage the magnitude of the impact of problem framing on overcoming physical barriers to service usage depends largely on the individual service user's circumstances.

Possible explanations of other phenomena were similarly evaluated, eliminated, or revised throughout the application of the I2S2A method. I evaluated the full set of the possible explanations and eliminated those explanations that either were minimally supported by the evidence and or were not plausible in the light of the holistic set of explanations that I had developed. For instance, one explanation that I evaluated and eliminated was the relationship of user satisfaction to whether a user would tell a friend about the services of LSC-HLS thus potentially increasing the chance that potential users would learn about the LSC-HLS's services. This explanation of service usage was too tenuous and lacked sufficient empirical support to survive to the final explanation set.

#### ***7.4.2. Generation of Parsimonious Realized Accessibility Explanation Set***

I arrived upon three sets of factors and causal mechanisms that explained some aspect of service usage. These three sets persisted through the iterative process of explanation refinement and were strongly supported by the empirical data. It is important to note that these three explanations are abstracted from the complex, individual contexts within which the factors and causal mechanisms operate. This level of abstraction simplifies the web of causal mechanisms to achieve clarity and conciseness. However, the simplification has the potential to suggest an overly deterministic relationship between causal mechanisms. I present these three explanations that describe how different factors are interrelated and affect service usage from the least complex set of relationships to the most complex set of relationships.

The explanations are essentially process diagrams of the relationship between different factors, causal mechanisms, and service usage. The three explanations center on: (1) how a user's knowledge of LSC-HLS is related to service usage, (2) how a user's financial vulnerability, her knowledge of LSC-HLS, and her time flexibility are related to service usage, and (3) how a user's knowledge and safety vulnerabilities, her knowledge of LSC-HLS, her problem framing, and her motivation to travel are related to service usage.

##### ***7.4.2.1. Explanation 1: How a User's Knowledge of LSC-HLS is Related to Service Usage***

The first explanation describes how a person's knowledge of LSC-HLS can impact service usage. Knowledge of LSC-HLS's services is one of the three preconditions of service usage.

There are four ways interviewees learned about the services that LSC-HLS provides. The first was that interviewees learned about LSC-HLS through their professional context. Such persons either worked in a law-related field or for a non-profit organization.

The second way that interviewees learned about LSC-HLS is via referral from a social service provider. In some cases, the social service provider had an established relationship with LSC-HLS. An example of this type of referring provider is the Passageway Program that refers a large number of persons to the Family Law and Domestic Violence Clinic. In other cases, the social service provider did not have a formal relationship with LSC-HLS but was aware of the services that LSC-HLS provides.

The third way that interviewees learned about LSC-HLS is through direct outreach activities conducted by LSC-HLS. Outreach activities include such things as LSC-HLS presence at service fairs, presentations to potential users at community locations, neighborhood canvassing, mail, or web presence.

The fourth way that interviewees learned about LSC-HLS was through their social context. Friends or family, who may or may not have been former LSC-HLS service users, often told interviewees about LSC-HLS.

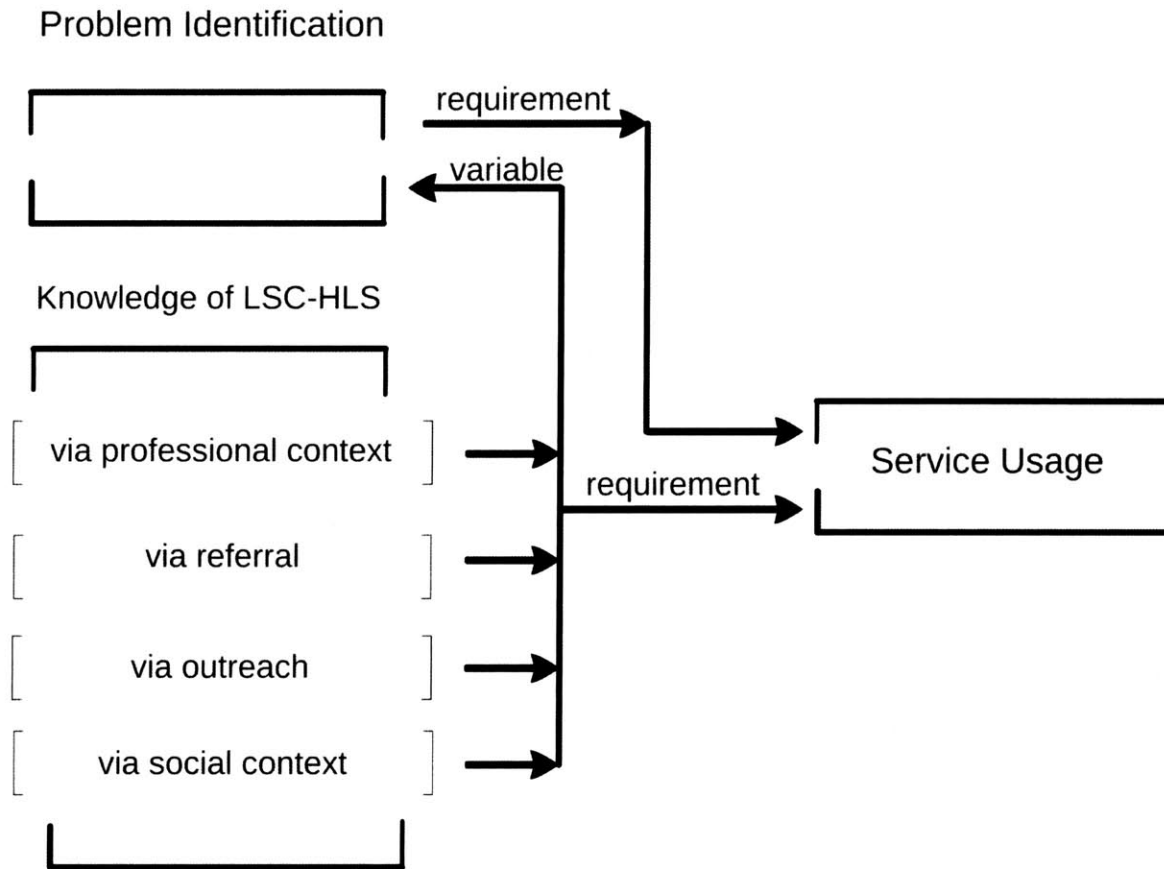
In all cases, knowing about the services of LSC-HLS was a precondition of use. In some cases, the manner by which an interviewee learned about LSC-HLS also caused them to understand their problem as a legal issue. Learning about LSC-HLS can thus satisfy not only one precondition of service usage but also the problem identification precondition. Interviewees who learned about LSC-HLS via referral often came to understand their problem as a legal issue during the referral process. For instance, a community organization, upon hearing the person's problem, both explained how their problem is a legal issue and told them about LSC-HLS.

The manner of learning about LSC-HLS does not always involve the identification of a problem as a legal issue. Learning about LSC-HLS and identifying a problem as legal often did not go hand in hand in the case of knowledge obtained through outreach. For instance, interviewees who learned about LSC-HLS by way of the internet had

predominately already identified their problem as a legal issue. They searched the internet for legal help and discovered LSC-HLS. Other interviewees who learned about LSC-HLS via outreach attended a service fair or presentation before their problem occurred. In some cases, these persons remembered the substantive information obtained and were able to subsequently identify their problem as a legal one in addition to remembering that LSC-HLS provided assistance with legal problems. In other cases, however, interviewees learned LSC-HLS existed via a fair or presentation but identified their problem as a legal issue through a separate process (i.e. a friend or family member suggested the problem might be a legal issue).

In *Figure 30*, I present a diagrammatic simplification that shows how knowledge of LSC-HLS and problem identification can impact service usage. The bracketed boxes in the diagram represent a factor that impacts service usage (e.g. knowledge of LSC-HLS). The arrows represent causal mechanisms. The arrows are labeled to indicate the general nature of the relationship although the actual magnitude of the mechanism's impact is dependent upon individual circumstances.

**Figure 30.** A diagrammatic simplification of the relationships between knowledge of LSC-HLS, problem identification, and service usage.



**7.4.2.2. Explanation 2: How a User’s Financial Vulnerability, Knowledge of LSC-HLS, and Time Flexibility are Related to Service Usage**

This explanation highlights how a user’s financial vulnerability is related to service usage and expands the first explanation by adding the additional factors of financial vulnerability and time flexibility. Financial vulnerabilities can impact how a person learns about LSC-HLS and it can impact a person’s time flexibility. These factors, in turn, can impact whether and how easily the person was able to use the services of LSC-HLS.

The relationships between how interviewees learned about LSC-HLS, whether they identified their problem as one which LSC-HLS could assist with, and how these factors are related to service usage are the same as I described in the previous explanation. As I’ve already indicated, the four ways that interviewees learned about LSC-HLS satisfied

one of the necessary preconditions of service usage. However, depending on the circumstances and method by which the person learned about LSC-HLS, the person might also identify their problem as a legal issue when they learn about LSC-HLS. Learning about LSC-HLS can thus result in the person satisfying two of the necessary preconditions of service use.

The degree of an interviewee's financial vulnerability has the potential to impact the likelihood that that they learned about LSC-HLS by one of the four identified ways. In particular, an interviewee's financial vulnerability can impact the likelihood that the interviewee learned about LSC-HLS via professional context, referral, or outreach.

The degree of an interviewee's financial vulnerability was generally inversely related to the likelihood that they learned about LSC-HLS via their professional context. The majority of persons that I interviewed explained that their greater levels of financial instability were accompanied by reduced professional interactions. At the extreme, although not at all infrequent, interviewees were often unemployed at their greatest level of financial instability thus reducing professional interactions to zero. The likelihood of learning about LSC-HLS via professional context frequently decreased as the person's financial vulnerability increased.

The relationship between interviewees' financial vulnerability and learning about LSC-HLS via a referral was highly variable. On one hand, the services that are potentially available to a person increases as their financial instability increases. On the other hand, these increased services are only relevant if the person is able to overcome the barriers to using a social service that could refer them to LSC-HLS. Although some interviewees actively engaged with service providers as their financial instability increased, others were overwhelmed by their financial instability. These people struggled to seek out social services while juggling financial crisis.

Interviewees who experienced financial instability as a persistent condition as opposed to it being a sudden event tended to access services that might refer them to LSC-HLS. In contrast, interviewees who experienced financial instability as a shock seemed less likely to

access other service providers who might refer them to LSC-HLS thus decreasing their possibility of learning about LSC-HLS via referral.

The relationship between a person's financial vulnerability and the likelihood of their learning about LSC-HLS via outreach was also variable. Learning about LSC-HLS via outreach in the form of informational fairs or presentations required interviewees to seek out information and or assistance. Interviewees were often unable to do this due to financial vulnerability. However, financial vulnerability did not appear to have an impact on learning about LSC-HLS if the method of outreach was not dependent on the person seeking out assistance.

Financial vulnerability also had a variable impact on the amount of flexibility an interviewee had to visit LSC-HLS. Some unemployed interviewees stated that their schedule was almost completely free due to joblessness. Other unemployed interviewees explained that their days had become busier because the majority of their time was taken up by job search activities or engagement in informal part-time work to compensate for the loss of a stable job. Employed interviewees who experienced financial vulnerability, mainly due to the unemployment of a spouse, generally felt that their schedules were less flexible due to increased pressure to perform at work so as to ensure some household income.

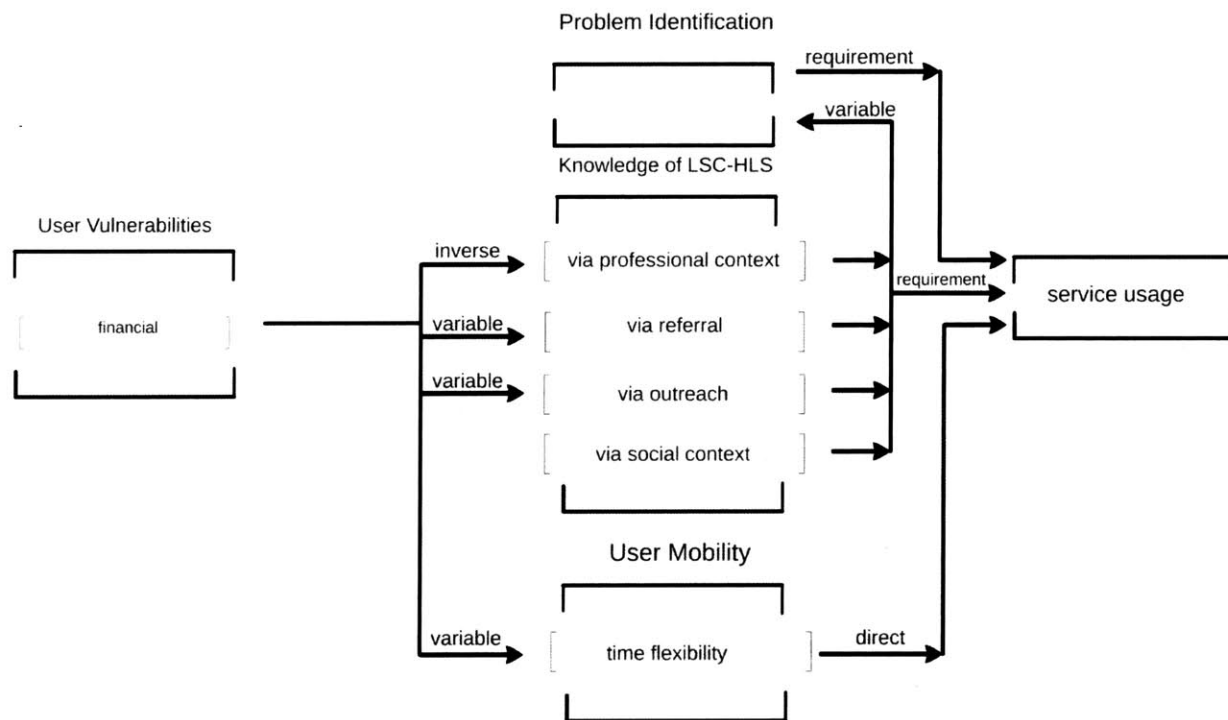
The effect of an interviewee's financial vulnerability on their time flexibility was dependent on the individual's circumstances. However, the amount of time flexibility an interviewee had was often directly related to their ability to use LSC-HLS's services. Interviewees who had greater time flexibility found it easier to travel to LSC-HLS to use the service. In contrast, interviewees with multiple fixed time obligations in their day had a difficult time finding time to visit LSC-HLS.

In *Figure 31*, I present a diagrammatic simplification that shows how user financial vulnerability, knowledge of LSC-HLS, problem identification, and time flexibility mediate service usage. The bracketed boxes in the diagram represent a factor that impacts service usage (e.g. knowledge of LSC-HLS). The arrows represent causal mechanisms. The arrows



are labeled to indicate the general nature of the relationship although the actual magnitude of the causal mechanism's impact is dependent upon individual circumstances.

**Figure 31.** A diagrammatic simplification of the relationships between user financial vulnerability, knowledge of LSC-HLS, problem identification, user time flexibility, and service usage.



**7.4.2.3. Explanation 3: How a User's Financial, Knowledge, and Safety Vulnerabilities, Knowledge of LSC-HLS, Problem Framing, Time Flexibility, and Motivation to Travel are Related to Service Usage**

The third explanation of service usage is a further expansion of the two above-presented explanations. This explanation adds the user vulnerabilities of safety and knowledge, a user's motivation to travel, and the two types of problem framing to the set of factors and causal mechanisms that impact service usage.

The third explanation describes how a user's framing of their problem can impact their motivation to overcome physical barriers to service usage. Additionally, I identify factors and causal mechanisms that impact how interviewees framed their problem. This explanation highlights how problem framing, the method by which a person learns about

LSC-HLS, and user vulnerabilities are connected to a user's willingness to overcome physical barriers that could otherwise inhibit service usage.

Interviewees exhibited varying degrees of knowledge vulnerabilities. Users with high levels of knowledge vulnerabilities either lacked post-secondary education or lacked knowledge of the legal system and or social welfare services for lower income households. In contrast, some users had low or no knowledge vulnerability. These interviewees often had completed a bachelor's degree and or had completed some graduate or professional training. Many of these persons were also familiar with the law although most had limited or no prior engagement with the civil legal system. A small number of interviewees demonstrated low knowledge vulnerabilities despite lacking post-secondary education. These users, however, had familiarity with resources available to lower income persons and some knowledge of the legal system due to their involvement with community organizations or employment with an organization that dealt with legal matters.

Interviewee's knowledge vulnerabilities were often related to whether the person learned about LSC-HLS via professional context or referral. In particular, an interviewee's knowledge vulnerabilities tended to be inversely related to the likelihood that they learned about LSC-HLS via professional context or referral. For instance, a user with a low-level of education and little knowledge of social services or the law (i.e. a high level of knowledge vulnerability) was unlikely to work in a professional setting where co-workers were likely to tell them about LSC-HLS or to know what social services were available to help them. In contrast, interviewees with low-levels of knowledge vulnerability frequently either learned about LSC-HLS from co-workers or contacted other agencies that eventually referred them to LSC-HLS.

The process of learning about LSC-HLS via professional context or referral tended to increase the likelihood that an interviewee framed their problem in extra-individual terms. A common theme among users interviewed was that a co-worker or referrer helped them understand that the problem not only impacted them but had larger social ramifications. The one exception to this was that interviewed users of the Family Law and Domestic Violence Clinic often understood their problem as directly impacting their children prior to learning about LSC-HLS. For these users, however, learning about LSC-HLS via

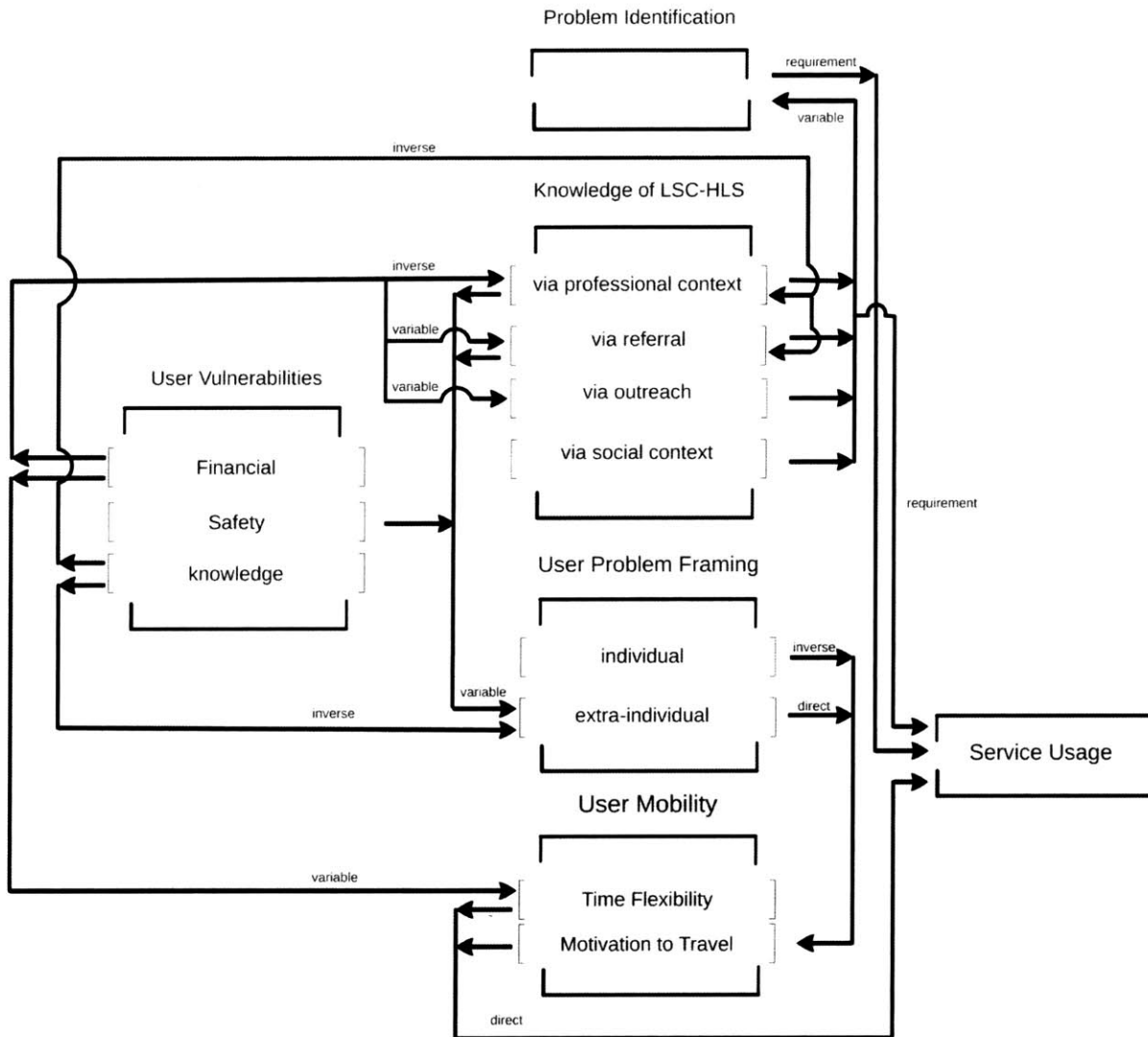
professional context or referral often deepened their extra-individual framing of the problem. For instance, many such interviewees connected their problems to larger issues related to stopping intimate partner violence or ensuring survivor rights only after learning about LSC-HLS via professional context or referral.

Interviewee's framing of their problem as being related to their personal circumstances or being relevant to extra-individual matters impacted how motivated they were to overcome physical barriers to using LSC-HLS's services. The impact of problem framing on a user's motivation to travel to use LSC-HLS's services was evidenced both by interviewees' beliefs of how far they would have been willing to travel to use LSC-HLS's services and by concrete user actions that demonstrated this motivation.

Interviewees who framed their problem as being primarily individual in nature consistently travelled less far to get to LSC-HLS and also explained that they would not have been willing to travel further to get to LSC-HLS. In contrast, interviewees who framed their problem in extra-individual terms travelled comparatively further to get to LSC-HLS and or explained that they would have been willing to travel further to get to LSC-HLS.

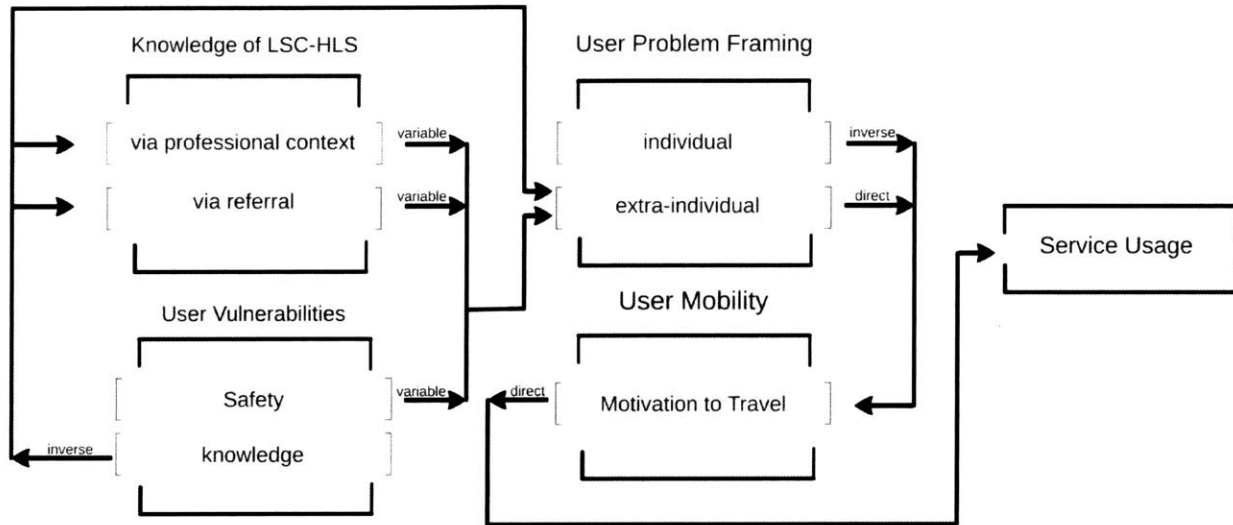
In *Figure 32*, I present a diagrammatic simplification that shows how user financial, safety, and knowledge vulnerabilities, knowledge of LSC-HLS, problem identification, problem framing, time flexibility, and motivation to travel impact service usage. The bracketed boxes in the diagram represent a factor that impacts service usage (e.g. knowledge of LSC-HLS). The arrows represent causal mechanisms. The arrows are labeled to indicate the general nature of the relationship although the actual magnitude of the causal mechanism's impact is dependent upon individual circumstances.

**Figure 32.** A diagrammatic simplification of the relationships between user financial, safety, and knowledge vulnerabilities, knowledge of LSC-HLS, problem identification, problem framing, time flexibility, motivation to travel, and service usage.



It is difficult to isolate the factors and relationships that this explanation adds to service usage from *Figure 32* due to the number of factors and causal mechanisms that that diagram presents. In *Figure 33*, I present a diagram that shows how the subset of various factors and causal mechanisms that this explanation adds to the set of factors and causal mechanisms that can impact service usage.

**Figure 33.** A diagram of how a reduced set of factors, causal mechanisms, and relationships from Explanation 3 are related to service usage.



### 7.4.3. Conclusion – Assessment and Elimination Phase

I proposed three related explanations of service usage in this phase of the I2S2A method. These explanations are grounded in the experience of service usage. They only detail a partial set of factors and causal mechanisms that can mediate service usage. The strength of these explanations rests not only upon their ability to account for and explain complex relationships but also that the explanations are grounded in evidence related to the lived experience of service usage. In the next chapter, I discuss how these explanations and the overall research process address the four research questions that I set out in Chapter 6.

## Chapter 8: Discussion

This empirical investigation produced findings that are relevant to socio-spatial entanglement theory, the I2S2A method, and practical issues related to interventions to increase civil legal service usage. The four research questions that I proposed in Chapter 6 speak to the spectrum of implications of this empirical research project. In this chapter, I revisit each of the four questions presented in Chapter 6.

### **8.1. 1st Research Question: Does the User/Type Cross-Section or Socio-Spatial Entanglement Theory Better Describe and Explain the Realized Accessibility of LSC-HLS's Services?**

The empirical results strengthen the conclusion that the user/type cross-section does not adequately explain how and why persons use a service. The results also support a finding that socio-spatial entanglement theory is able to generate explanations of service usage.

The user/type cross-section posits that the things that impact service accessibility can be categorized as social or spatial factors. This application of socio-spatial entanglement theory generated strong empirical support for the finding that the factors and causal mechanisms that explain how and why people use a service are not explainable by spatial and social factors alone. For instance, there is both a spatial and social aspect to how people learn about LSC-HLS. Where a person is located partially determines who she can interact with, as too do social factors like her education and socio-economic status.

Equally important, the causal mechanisms and how they are connected span the analytic divide between the spatial and social. For instance, the connection between user problem framing and user travel behavior is not a relationship that can be explained by a theory or method that separates service accessibility into spatial and social factors. Rather, the relationship between these factors strongly suggests that spatial and social factors are entangled and that these entanglements ultimately shape why and how people use a service.

## **8.2. 2nd Research Question: Does the I2S2A Method Allow Researchers to Examine Spatial and Social Service Accessibility Factors and Socio-Spatial Entanglements in an Integrated and Interactive Manner?**

The results of this study supports the position that the I2S2A method can be used to generate explanations related to the how and why of service usage at least for those person who overcame the initial hurdles to contact LSC-HLS. In fact, the method enabled the generation of service usage explanations despite the fact that there was limited research on the factors and causal mechanisms that underlie civil legal service realized accessibility. The I2S2A method is capable of connecting socio-spatial entanglement theory with the practice of empirical realized service accessibility research. It grounds empirical realized service accessibility research in the ontology of accessibility factors and thus the things that shape the experience service usage.

The application of the I2S2A method in this research suggests two needed refinements. First, the phases of the I2S2A method blend into each other and the researcher will likely cycle through the method's phases multiple times in a given research project. Further, cycling through the phases is not necessarily evident while conducting the research but rather only when one pauses and reflects on the research process. This cycling suggests that the description of the I2S2A method that I formulate in this research is an analytical heuristic rather than a step-by-step description of the research process.

Second, it was difficult to integrate the data from the Exploration of Administrative Data Part of the Description of Appreciation Phase with the data from the qualitative part of the Description and Appreciation Phase. There were two reasons for this difficulty. First, the available research that was used to direct variable selection was generated from research that used the service accessibility analytic framework. As this research demonstrates, such research produces descriptive accounts of realized accessibility and not explanations of realized accessibility. I believe that this limitation of the quantitative data analysis was partly due to looking at the wrong types of quantitative data. Second, the administrative data reliably captured only a small amount of user data. The scope of the

data, including what attributes were recorded, was simply too limited to realize the potential of quantitative analysis techniques.

LSC-HLS could improve their data collection practices to better support policy and research efforts. There are three areas for improvement that would require minimal effort and could substantially increase the usefulness of the administrative data for policy and research. First, the agency should record data in a manner that the meaning of attribute is consistent both within and between clinics. LSC-HLS could accomplish this by issuing agency-wide data entry standards.

Second, LSC-HLS should examine whether the currently collected data is relevant to operations, policy, or research. In the instance that an attribute is not relevant for any of these three activities the attribute should be dropped. Additionally, the agency should seek to maximize the usefulness of any attribute collected by attempting to identify attributes that are relevant to multiple topics of interest.

Third, LSC-HLS should examine where in the case record information is captured. The area in which the data is captured impacts how the data can be used. For instance, if user contacts are recorded via case notes this information, although accessible to clinical students and attorneys, is difficult for agency policy makers to access and likely impossible for third-party researchers to access due to concerns related to the protection of human subjects and the attorney client privilege.

### **8.3. 3rd Research Question: What Factors and Entanglements Shape the Realized Accessibility of LSC-HLS's Services?**

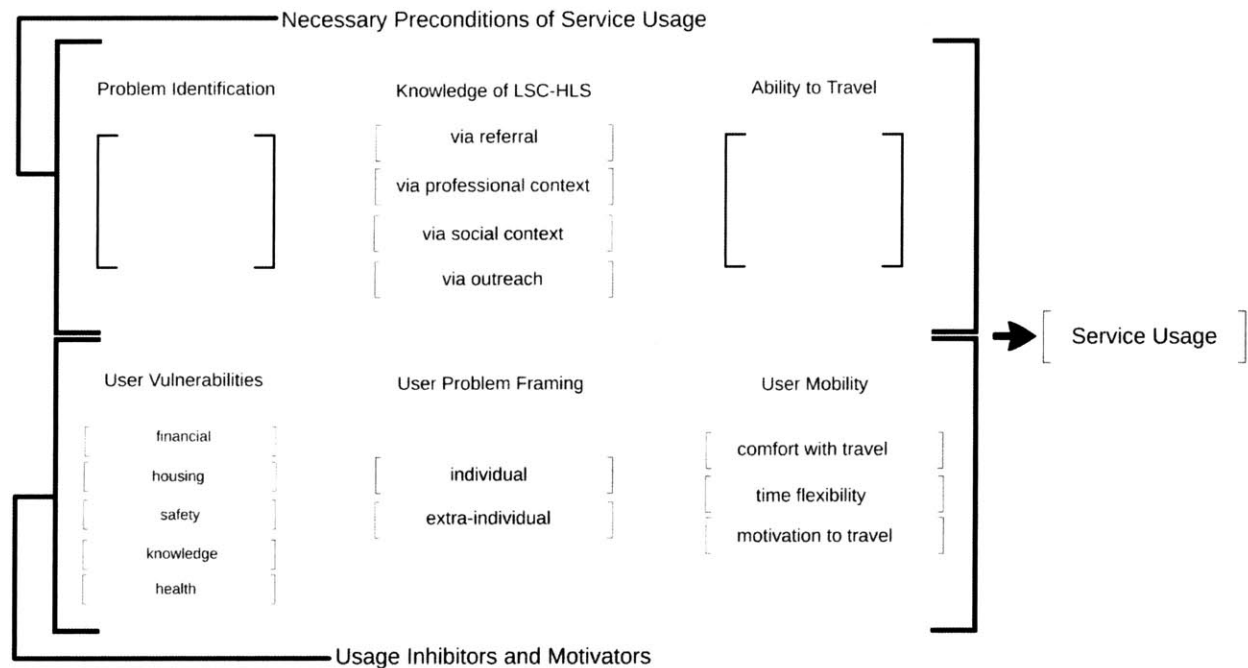
The results of this study support three conclusions regarding the factors and causal mechanisms that impact the usage of LSC-HLS's services. The first conclusion is related to the types of factors that mediate service usage. The second and third conclusions relate to how different factors are connected via causal mechanisms.

I identified two types of factors that impact service usage: (1) preconditions of service usage and (2) factors that inhibit or motivate service usage. There are three preconditions of service usage: (1) ability to travel, (2) problem identification, and (3) knowledge of



LSC-HLS. All interviewees possessed these preconditions prior to service usage. I also identified three factors which have the potential to inhibit or motivate service usage. These three factors are: (1) problem framing, (2) mobility factors, and (3) user vulnerabilities. In *Figure 34*, I present a diagram of the two types of factors that I previously presented in Chapter 7.

**Figure 34.** A diagram of the identified factors relevant to service usage.



This study suggests the existence of two sets of factors and causal mechanisms that mediate service usage. The first set of relationships explains how an interviewee’s problem framing can impact their willingness to overcome physical barriers to service usage. In particular, users who framed their problem as being relevant to extra-individual concerns (e.g. economic justice/fairness, providing a home for one’s family, etc.) tend to be more motivated to overcome physical barriers to service usage than users who only framed their problem as being relevant to their individual circumstances (e.g. personal finances, having an apartment, etc.).

The second set of factors and causal mechanisms is that certain ways of learning about LSC-HLS appeared to increase a person’s motivation to use LSC-HLS’s services. In particular, the method by which an interviewee learned about LSC-HLS either had the

potential to satisfy one precondition of service usage (the knowledge of LSC-HLS precondition) or two preconditions (knowledge of LSC-HLS *and* the identification of the problem as a legal issue). When an interviewee learned about LSC-HLS via referral or professional context the person was more likely to simultaneously identify the problem as a legal issue and learn about LSC-HLS's services. Further, when an interviewee learned about LSC-HLS via referral or professional context, that person was also more likely to frame the problem in extra-individual terms which in turn often impacted their motivation to overcome physical barriers to service usage. This suggests that the method by which a person learns about LSC-HLS has the potential to facilitate service usage beyond simply satisfying the knowledge of LSC-HLS precondition.

#### **8.4. 4th Research Question: Do the Ways in which Spatial and Social Factors and Socio-Spatial Entanglements Shape the Realized Accessibility of LSC-HLS's Services Suggest Specific Interventions to Facilitate Service Usage?**

The relationships of factors to each other suggest two interventions targeted at the causal mechanisms that underlie service usage. First, increasing the likelihood that a person frames their problem in extra-individual terms could result in the person being more motivated to overcome physical barriers to service usage. LSC-HLS could facilitate extra-individual problem framing by connecting legal problems to extra-individual issues in outreach materials. For instance, rather than describing what predatory lending is and explaining that LSC-HLS can provide assistance for problems in this substantive area, LSC-HLS could also discuss how working with LSC-HLS advances the larger battle against exploitation of lower-income individuals by for-profit schools.

Second, strengthening and developing relationships with referring agencies may be an effective way to encourage people to use LSC-HLS's services. Interviewees who learned about LSC-HLS by referral tended to both identify their problem as a legal issue and to frame their issue in extra-individual terms. Increasing referral relationships can impact multiple causal mechanisms that mediate service usage. That LSC-HLS might be able to increase service usage by focusing on developing their referral network may seem odd particularly since it might entail directing resources towards referrer relationship development that would otherwise be used for potential user outreach. However, this

study's findings suggest that, due to the causal mechanisms that impact service usage, increasing referral to LSC-HLS may be a more effective way to facilitate service usage.

## **8.5. Conclusion**

In this chapter, I discussed my findings from the application of socio-spatial entanglement theory and the I2S2A method. In particular, I explained how the research findings spoke to each of the four research questions that I posed in Chapter 6.

I summarize this dissertation research in the next chapter. I also identify areas for future research and discuss the implications of this research for service accessibility research and for policy actors seeking to facilitate service usage.

## Chapter 9: Conclusion

I developed a theory of service accessibility in this research, socio-spatial entanglement theory, and a realized service accessibility method, the I2S2A method. I also applied this theory and method to partially explain the realized accessibility of the civil legal services provided by the Legal Services Center of Harvard Law School (LSC-HLS).

In this chapter, I first outline socio-spatial entanglement theory and describe how it resolves issues with current service accessibility theory. Next, I explain how the integrated, interactive, socio-spatial accessibility (I2S2A) method allows service accessibility researchers to study and explain realized service accessibility in a theoretically justified manner that is grounded in how and why people use a service. Third, I briefly reiterate the findings from the empirical investigation of the civil legal services provided by LSC-HLS. Fourth, I identify areas for future research suggested by this research. Lastly, I explain the broader import of this research to service accessibility research and to policy efforts to facilitate civil legal service usage.

### 9.1. Socio-Spatial Entanglement Theory

Socio-spatial entanglement theory discards the service accessibility analytic framework that currently passes for service accessibility theory and offers an alternative, ontologically-informed theory of service accessibility. Socio-spatial entanglement theory is premised on the proposition that spatial and social service accessibility factors are entangled with each other. These entanglements result in spatial and social factors interacting with each other. Unlike the service accessibility analytic framework, socio-spatial entanglement theory is based on the proposition that socio-spatial interactions and spatial and social factors shape service accessibility.

I presented two explicit challenges to the service accessibility analytic framework in this dissertation. These two challenges undermine the saliency of the service accessibility framework and demonstrated the need of an alternate service accessibility theoretical framework. The first challenge was based on how the meaning of distance varies both within and between historical/technological moments. This variation suggests that the spatial and the social are connected. The existence of this connection challenges the

separability of spatial and social factors. The service accessibility analytic framework is incorrect in asserting this separability. In fact, spatial and social service accessibility factors are always interconnected; the spatial is socialized and the social is spatialized. I offered socio-spatial entanglements as a way to conceptualize the interconnectedness of spatial and social service accessibility factors.

I also showed that the interconnectedness of spatial and social service accessibility factors is necessary and not just a practical fact. This argument was informed by Critical Realist philosophy and involved an examination of the ontology of service accessibility factors. Specifically, I showed, using the Critical Realist distinction between natural and social objects, that most service accessibility factors are social objects. This is true regardless of whether a service accessibility factor is categorized as spatial or social by the service accessibility analytic framework. Social objects are necessarily connected with other social objects in a complex web of entanglements. Service accessibility factors, as social objects, are likewise necessarily entangled with each other.

Socio-spatial entanglement theory and the service accessibility analytic framework both posit that spatial and social factors impact service accessibility. They differ, however, about what can explain service accessibility. The service accessibility analytic framework posits that service accessibility can be explained completely by spatial and social service accessibility factors. Socio-spatial entanglement theory acknowledges the relevance of spatial and social factors but argues that researchers also need to understand how factors interact to adequately understand service accessibility.

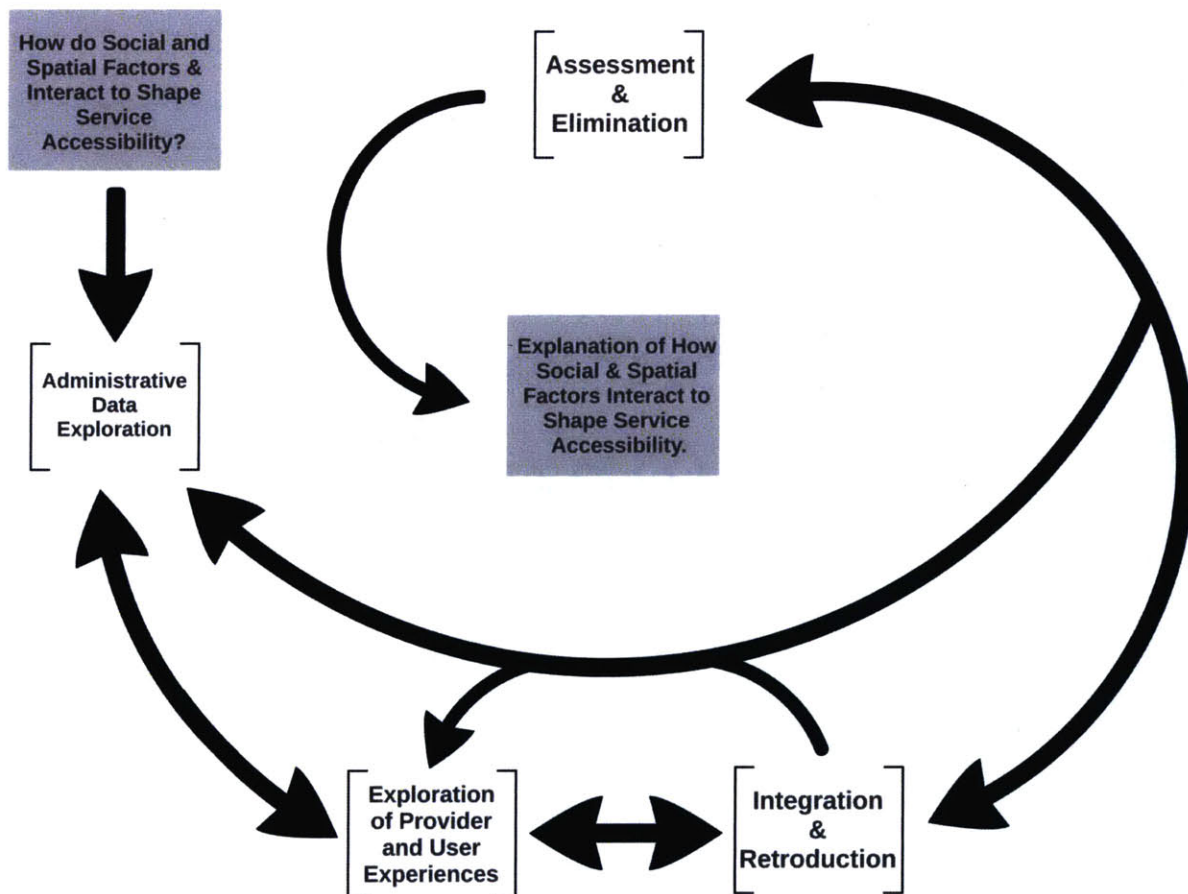
The difference between socio-spatial entanglement theory and the service accessibility analytic framework can be described using a metaphor of a knot. Imagine that service accessibility is a knot made by tying together two ropes. These two ropes are spatial and social accessibility factors. The service accessibility analytic framework suggests that the knot can be understood by just understanding the two ropes that compose it. This effectively reduces the knot to the ropes. In contrast, socio-spatial entanglement theory argues that the knot can only be understood by understanding both the ropes that make it and how the ropes are entangled. Regardless of whether one believes that entanglement is a matter of practical or formal necessity, socio-spatial entanglement theory captures the

actuality of service accessibility by explaining service accessibility not based on an analytic distinction but on the nature of service accessibility factors and or common sense reflections on how these factors function.

## 9.2. The Integrated, Interactive, Socio-Spatial Accessibility (I2S2A) Method

The integrated, interactive, socio-spatial accessibility (I2S2A) method is a method for researching realized service accessibility that is built upon socio-spatial entanglement theory. It also bridges socio-spatial entanglement theory and empirical realized service accessibility research. It connects foundational theory about the nature of service accessibility factors with the practice of realized service accessibility research. In *Figure 35*, I present a high-level overview of the I2S2A method.

**Figure 35.** An overview diagram of the I2S2A method.



I outline five core features of the I2S2A method in this section. First, the I2S2A method enables researchers to study spatial and social service accessibility factors simultaneously in an integrated fashion. The need for an integrated approach to realized service accessibility research is supported by existing service accessibility research and socio-spatial entanglement theory. Returning to the knot metaphor, the researcher needs to understand both of the ropes together to understand how the knot is tied (i.e. understand them in an integrated fashion).

Second, the I2S2A method permits researchers to examine how socio-spatial entanglements and interactions mediate realized service accessibility. The ability of the method to incorporate socio-spatial entanglements and interactions is most easily seen in the Exploration of Provider and User Experiences Part and the Integration and Retroduction Phase. The elicited data in the Exploration of Provider and User Experiences Part relates to, amongst other things, why and how people use a service. The why and how of service usage turns on the ways in which spatial and social factors interact to shape behavior.

The focus on socio-spatial entanglements is carried into the Integration and Retroduction Phase. Specifically, the research in this phase attempts to move from the empirical data and information created to explanations of the factors and causal mechanisms that explain service usage. These explanations are not limited to just spatial and social factors but also focus on how the relevant factors interact.

Third, the researcher learns from her empirical observations in a manner that is consistent with what the type of objects that service accessibility factors and socio-spatial entanglements are. Specifically, the researcher uses retroduction to infer explanations from empirical observations. Retroduction is a type of inference from observation that can be used in situations where observation is only possible in an open system. A researcher, using retroductive inference, postulates what things must exist in order to explain the observed phenomena.

Fourth, the I2S2A method engages a researcher in an iterative, non-linear, and reflexive research process. The explicitly iterative, non-linear, and reflexive nature of the I2S2A

method is a necessary part of retroductive discovery. The method requires that the researcher move between phases and activities in an iterative and non-linear way. The I2S2A method also demands that the researcher understands how the research process and her preconceptions impact her understandings.

Lastly, the I2S2A method is mixed-method. The method leverages both quantitative and qualitative data to afford the service accessibility researcher with a diversity of data from which to retroduce. The mixed-method approach is recognition of the unique value of administrative data and user experiential data to realized service accessibility research. A mixed method approach is also supported by a large body of applied Critical Realist literature.

### **9.3. Findings**

I answered two types of questions with this research. The first type relates to socio-spatial entanglement theory and the I2S2A method. The second type speaks to civil legal service realized accessibility.

I found that socio-spatial entanglement theory can be used to explain how and why a person used LSC-HLS's services. Further, I found that the spatial and social silos of the service accessibility analytic framework could not adequately explain the ways that socio-spatial entanglements and interactions impact service usage. In contrast, the I2S2A method generated explanations of realized service accessibility that both explained service usage and captured the lived-experience of service usage.

The second type of questions my findings speak to are related to civil legal service realized accessibility. I found that civil legal service realized accessibility is mediated by factors including problem framing, user mobility and user vulnerabilities. I also identified four preconditions to service usage.

I identified how these factors and preconditions can interact to shape service usage and under what conditions the relevant causal mechanisms are activated. For instance, I explained how a user's framing of their problem can impact their decision to use LSC-



HLS's services. I also explained how the manner that a user learns about LSC-HLS can impact their motivation to overcome physical barriers to service usage.

The identified factors and causal mechanism that can impact a person's usage of civil legal services suggest two novel interventions to facilitate service usage. The first intervention centers on how a user's problem framing can be related to their motivation to overcome physical barriers to service usage. By facilitating extra-individual problem framing, providers might be able to increase a person's motivation to overcome physical barriers that could otherwise inhibit service usage. Providers could encourage extra-individual problem framing by explicitly connecting their services to larger efforts to combat the exploitation of lower-income households and or increase social justice.

The second intervention centers on the potential impact of learning about LSC-HLS via referral. When interviewees were referred to LSC-HLS, they were more likely to satisfy the preconditions of service usage and to frame their problem in extra-individual terms. These factors, in turn, impacted the interviewee's motivation to overcome physical barriers to using LSC-HLS's services.

#### **9.4. Future Research**

This research suggests multiple areas for future research. First, socio-spatial entanglement theory and the I2S2A method should be empirically validated and ground-truthed by applying them to study other types of service. Empirical validation in other service accessibility contexts would demonstrate the utility of socio-spatial entanglement theory and the I2S2A method to the service accessibility domain.

Second, future research should attempt to deepen understandings of the factors and causal mechanisms that shape civil legal service realized accessibility. This research identifies some factors and causal mechanisms that impact service usage in relatively general terms. For instance, I identified that the causal mechanism and relationship between extra-individual problem framing and motivation to travel tends to be direct. Future research could usefully be directed at uncovering whether different types of extra-individual problem framings impact realized accessibility differently and the contexts in which these problem framings occur.

Third, future research should build higher-level theories related to the measurement of socio-spatial entanglements that are grounded by socio-spatial entanglement theory. I present a research method for examining realized service accessibility built upon socio-spatial entanglement theory. Future research could, however, usefully develop theories for the measurement of socio-spatial entanglements or specific types of socio-spatial entanglements.

Fourth, future research should identify the components used to define service accessibility in a given context (i.e. civil legal services, mental health service, etc.). The specific definition of service accessibility used is unavoidably a normative enterprise. However, the identification of the set of components that can be arranged to arrive at various definitions of service accessibility is squarely within the ambit of social science research. This task is even more pressing as socio-spatial entanglement theory suggests that previous efforts to define service accessibility in terms of the spatial and social fail to capture the role that socio-spatial entanglements play in service accessibility.

Fifth, future research might explore how quantitative data could better be used to identify socio-spatial entanglements of possible interest. The insights of other domains, while not the focus of this work, should be incorporated into how quantitative data can be used in service accessibility research. For instance, the transportation modelling domain has developed several statistical and modelling methods to measure how travel demand is mediated by spatial and social factors (Ben-Akiva & Lerman, 1985). While such quantitative approaches are unlikely to generate rich descriptions of the how and why people use a service, such quantitative methods could be used to identify socio-spatial entanglements for additional study (Collier, 1994; Danermark et al., 2002; Sayer, 2010). Looking to other accessibility domains could be particularly useful as the service accessibility domain currently lacks a sufficient understanding of the factors and socio-spatial entanglements that impact service accessibility. Absent the specification of the set factors and entanglements that may impact service accessibility, future research will likely struggle to develop a coherent approach to service accessibility, generally, and civil legal service accessibility, in particular.

Lastly, future research could focus on the measurement of potential service accessibility in a manner that is consistent with socio-spatial entanglement theory and that is responsive to the context specific meaning of service, service usage, and accessibility. This research deals exclusively with realized access, i.e. service usage, in the context of the civil legal services provided by LSC-HLS. The development of a method to estimate potential service accessibility grounded in socio-spatial entanglement theory in a context responsive fashion could substantially advance the service accessibility field. Additionally, such research could help providers allocate program resources in a manner that is responsive to potential user populations.

On a related note, this potential accessibility measurement should address the particular challenge of measuring the potential user population of service providers that have fuzzy eligibility standards. Providers, like LSC-HLS, who engage in an eligibility determination process that privileges individualized and context-specific evaluation of eligibility as opposed to the bright line eligibility standards of many federally and state funded service providers present a unique challenge to the approximation of the potential user population. The development of a method to estimate the potential user population of such providers presents a substantial and complex problem.

## **9.5. Broader Implications**

This research has implications for service accessibility research and policy. It suggests that service accessibility research should turn away from its overly analytic focus on spatial and social factors and turn towards understanding the socio-spatial entanglements that shape service accessibility.

In terms of policy, it suggests that interventions to facilitate service usage should be directed at the underlying causes of service usage. Only explanatory research can uncover the causes of service usage. Socio-spatial entanglement theory and the I2S2A method provide researchers and policy actors with a theory and method to generate causal explanations of realized service accessibility.

Lastly, this research suggests that third party actors, such as referrers, play an important role in both how people identify that they need legal help and how people frame their

legal issue. The role of third parties suggests that the Judiciary, the Bar, and civil legal service providers should consider the role of actors outside of the legal system when attempting to facilitate civil legal service usage. In some cases, increasing engagement, referral, and coordination with community based organizations could increase knowledge and usage of civil legal services amongst low-income households.

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