BUS STOP MATTERS

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ABSTRACT

National health initiatives associate the benefits of increased physical activity with public transit. Current literature frames health on absolute walking numbers and type of walking based on controlled caloric and physiological measures. These numerical parameters fail to take into account the lived experience of bus users**.** Although, the close connection between increased physical activity, weight loss, and better health have become the official discourse applied to multiple arenas, this article demonstrates that these are potentially, but not necessarily linked processes. My focus is the bus stop design. The bus stop is the point where the pedestrian becomes a passenger. This vital navigational process has been under-investigated. This studied argues that funding and performance measures for public transit should reflect how well the health of the bus user is maintained, and not simply how well transit can move.

KEYWORDS: Bus stop, functional health, urban design, transport performance, embodied movement

INTRODUCTION

Carlos Dora of the World Health Organization stated **"**current indicators of transport usually measure how well transport systems move vehicles, not how they affect people**"** (Schlaikjer 2011). In other words, bus systems are designed for the movement of the motor vehicle, their efficient flow from one point to the next point, and not for their effect on humans. A common evaluation of public transit measures on-time performance or how successfully the bus adheres to the printed route schedules. This assessment represents a technocratic approach. As a result, attention is directed away from the lived experiences of the individual bus users in the everyday process of navigating the bus system, in particular at the bus stop (See Fig. 1).

This study explores an accountability standard that can incorporate qualitative measures of equity and health into transportation policy and practices. Based on ethnographic fieldwork, it examines the bus user's experience of navigating the bus stop during the implementation of a bus stop consolidation program at Knoxville Area Transit (KAT). It intersects this event with the national appeal for active transportation, and with a perspective of embodiment. Initial results show, bus stop design strongly favors into the experience of walking or active transportation.

FIGURE 1 – Bus User Walking to the Bus Stop

The origin of active transportation comes from concerns for a growing sedentary life-style, and increased chronic disease and obesity (Pate et al. 1995). It simply refers to any form of travel that is non-motorized. Thus, in 1996, the US Surgeon General's Report *Physical Activity and Health* officially declared that everyone should get a recommended thirty minutes daily of moderate physical activity. Subsequent studies introduced transportation into the discourse on physical activity and public health (Sallis et. al 2004). Further studies estimated that public transit users as compared to those who depend on a car walk 30% more steps (Edwards 2008; Besser and Dannenberg 2005).

Therefore if bus users are more likely to meet the national recommendations for increased physical activity, how do bus users experience this active transportation?

Given that health parameters of the body change with the socio-political context, this study began the analysis of the embodied movement with predictive health (Csordas 2011). Predictive indicators of functional health suggest that actual poorer health may result in the form of shoulder joint dysplasia (packages), weather effects (cold, heat, and rain), and fatigue (standing). Furthermore, the outcomes often accumulate covertly and in small doses over an extended period of time versus from one acute incident. This scenario is similar to how some medical practices have begun to look at and treat low back pain. The implication is that the result has an impact on all ages and may not seem to matter if the bus user was in a state of good health or bad health to begin with. Therefore, a valid marker of future health would measure shoulder strain and the effects of weather and standing. Whereas, an adequate bus stop design would limit these deleterious health effects that occur over time.

In Rapoport's seminal article, *The Meaning of the Built Environment* (1982), the built objects communicate the shared subjective meanings of a group or what is culturally valued. This article draws on this conceptual framework of *cultural valuing*. For example, most bus stops are only a narrow sign post. This image frames the lived experience of movement for those who actually use them and for those who do not, in turn reproducing designs in relation to that image of the bus stop (Low 2013). Acknowledging this social production and reproduction, more anthropologists are analyzing this process of valuing in relation to the small-scale street design. For example, ethnographies examined a particular curb design in relation to multi-modes of transport (Patton 2007), and the lack of crosswalks (Levinger 2002). By examining mobility through the bus stop design, the negotiation of differently valued public space is revealed and may illuminate other ways to view health currently hidden.

This article is divided into four parts. The background segment explores the historical value of the bus stop. This background information is followed by a brief description of the methods and research perspective used. The next section illustrates the phenomenon of walking for current bus users and the valuing of bus stops. Lastly, this study concludes with several recommendations for policy and structural changes.

BUS STOPS: Historical Process of Valuing

Bus stops have always been integral to public transit. Bus stops are the point where pedestrians become passengers. Although this navigational process of getting to the bus stop, waiting at the bus stop, and using multiple bus stops encompasses many experiences, it has been under-investigated. In this context, it is useful to review this history of how bus stops became valued.

Early models for urban design contributed to the displacement of bus stop planning. These models originated during the post WWII era and emphasized large-scale infrastructures (Dimitriou 2010). A particular type of intermodal connectivity created the current freeways and suburbs (Rose and Raymond 2012). The viewpoint was that form should follow a specific function in which roads where designed for vehicular traffic and not necessarily for people (Stevenson 2003). Small-scale structures on the street, such as curbs and crosswalks did not start to be valued until the recent introduction of urban

planning concepts. Concepts, such as Complete Streets, multi-modal, and Streets for All are urban designs that imply inclusion of all modes of travel. In theory, these principles and actions should assist all socioeconomic groups. Instead, a predominant technocratic approach suppresses other narratives of the mobility experience. The specific attention of bus stop standards soon followed this general focus of micro infrastructures.

The adoption of bus stop standards is a relatively recent practice. Standards became increasingly common in the bus industry for several reasons. Those changes include new technology such as global positioning systems (GPS), updated civil engineering efficiency models based on friction-less or corridor pathways, and the enactment of the American with Disabilities Act of 1990 (ADA), to name only a few. Before that, bus stop guidelines were open to multiple interpretations, both within and among transit agencies. For instance, urban bus stops might be located anywhere from 300 to 800 meters apart, even when comparing different metropolitan areas with similar demographic features and topography. Historically, the ambiguities with bus stop spacing have constrained the consideration given for the importance of its design. Not until the mid-1990s did the Transportation Research Board (TRB), part of the National Research Council, begin providing research and recommendations to transit agencies and policy-makers for bus stop placement and design.

Despite this move toward setting guidelines, improvements to the bus stop design remain of secondary concern. Transport planners classify the bus stop design as an amenity and not as a basic feature. Basic features include the bus and the roadway (Fitzpatrick et al. 1996). In contrast, an amenity is usually a shelter, bench, or waste receptacle. As an amenity, transit agencies place the bus stop features as a low priority and this decision is further justified during periods of financial constraints. According to current recommendations, the placement of a bus bench or a shelter is primarily justified on ridership counts or length of waiting time between buses (Law and Taylor 2001).

On a local level, the policy of *Bus Stops Only* expresses the national trend toward bus stop consolidation. This directive means that buses will no longer be allowed to pick up or drop off passengers at just any safe location or corner. Buses will only stop at the designated bus stops. These initiatives are becoming more common in order to meet limited financial budgets while at the same time maintain standards for quality of service (Ammons 2001; Smart et al. 2009) The goal is for on-time performance which means buses arrive and depart on schedule, increasing vehicular efficiency and passenger ridership. The intent of the bus user is *don't have to wait long* and *know exactly where the bus will stop*; whereas, the goal of the bus vehicle is to waste less energy. However, if bus stop consolidation is becoming more common, then are bus stops becoming less valued because transit users *don't have to wait long*?

METHODOLOGICAL FRAMEWORK

This study draws on ethnographically informed research in Knoxville, Tennessee during the implementation of the *Bus Stops Only* policy. The research design followed a mixed-methods approach by combining both qualitative and quantitative data to reveal how current bus users perceive navigating the bus stop. Each method provided constant feedback throughout the research process. Ethnography informed the in-depth surveys; the surveys informed the ethnography.

A phenomenological approach guided my research lens. In particular, in which embodiment relates to the body as both an object of study as well as the focal point of experiencing the natural world (Csorda 1994). In this sense, our bodies are a socialized body. In other words, our cultural values enter our body and changes the way we move. In turn, this internalized sense of *being-in-the-world* affects the way we perceive the world. For example, we learn how to wait at the bus stop and what to feel. Therefore, collecting this embodied space provides the ability to see others or different perspectives as real.

The data collection included participant-observations with three groups of bus users in the Knoxville area. The 22 Broadway Bus Route which is one of four core routes with high monthly ridership reports (See Fig. 2). Next, the Summit Towers is the only high-rise apartment for low-income individuals located within the gentrified central downtown business district. Lastly, the Downtown Knoxville Transfer Point is where all buses meet and where most passengers make transfers. Participant observation is a primary method of doing research in ethnography. This technique can best be described as acquiring insight into another group by taking part in the group's everyday social goings-on along with observing and recording those activities as an outsider. Participant-observation combines well with interviews because how do you ask someone when something is natural or used everyday. In addition, from these three sample areas, a total of 26 bus users completed structured interviews - Likert-type scales and sentence-completion test. Pelto and Pelto (1978) describe these tests as a systematic way to collect and compare both the weight of particular meanings and underlying meanings to discourse and behaviors.

FIGURE 2 - 22 Broadway Bus Route – white dots showing bus stops

KEY FINDINGS

The health costs for bus users as well as for the community are felt at the bus stop level, particularly when considering the bus stop design. All that walking may be good but the repetitive, albeit brief episodes of open air standing negates those benefits. Bus stops are valued as part of the walking experience.

Illustration of Phenomena: Value of Bus Stops

During the interview process, the wording of the demographic survey changed – *Number of Times Ride the Bus Weekly*. Instead, bus stop replaced bus. More value was placed on the number of bus stops used versus the number of buses rode. This subtle difference has a larger experiential impact. Active transportation or the walking experience is in-relation to the bus stop.

The results from the Likert-type scales shows as *least handy* when compared to the other bus concepts identified as important in the transportation literature (See Fig. 3). Because the bus stop is *least handy* it is most valued. Although the primary time frame for the fieldwork took place as the new policy for bus stops was eminent, I consider this timing an appropriate bias. Moments of disruption sometimes bring to the surface expressions otherwise hidden or not given proper attention. Or as noted below, provide illumination of another way to view health – functional health or cardiovascular health.

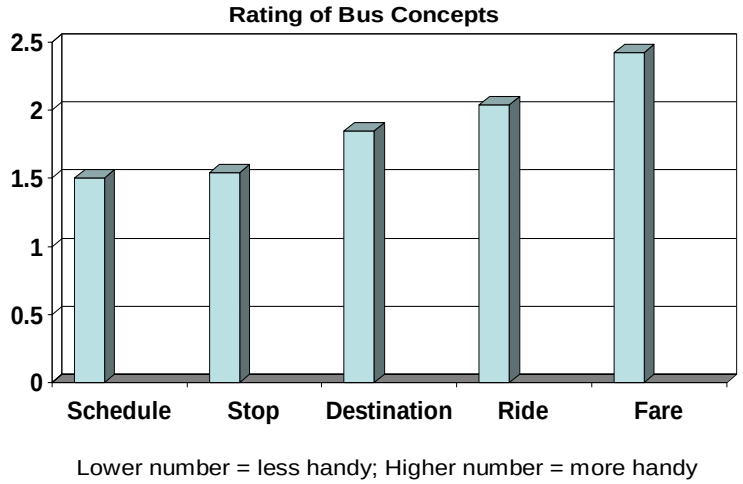

FIGURE 3 – Rating of Bus Concepts – Likert-type Scales

Description of a Phenomenon: *Ten Minutes is a Long Time to Wait*

Without amenities, such as no bench or no shelter, the decision to maneuver to the bus stop is bodily felt as weighted in the sense of embodied mobility. Furthermore, the numbers valued by transit planners impact the bus users. There is a difference in viewpoint toward *buses will be on time* as in bus stop consolidation and the bus user *times herself exactly* before the next bus, as in the following scenario:

> I time myself exactly seven minutes before the arrival of the next bus. Then I leave my place. [I] don't want to be out long because hot and humid or rain plus there is no where to sit; so, I leave just those one to two minutes extra because [I] may be held up by traffic light, waiting to cross [at the crosswalk]. [Lives approximately 300 meters from the bus stop].

The first viewpoint, *buses will be on time*, sends a message that amenities do not matter and the latter perception, *times herself exactly*, indicate a bench and a shelter certainly do matter. The bus user is placed in a *holding on* position because their schedule must work around the bus. There is a reaction not to stand and wait but to get out there *just at the right time*. The bodily sense is swoon and rigid. Predictive health indicators are dependent edema and weather effects. However, traditional health measurements of

cardiovascular and physical fitness do not capture the importance of a bench in being there for the bus. Whereas, a bench provides a resting place to briefly wait for the bus.

The cumulative effect of brief waits outside wears the body down. Bus users are observed to be wearing down – how hold self, how dress, and how engage in conversation – rub shoulder, shifting packages, hands undershirt, and legs gently fidgeting or locked in a standing position (See Fig. 4).

FIGURE 4 – Bus Users Waiting at the Bus Stop

> …there's not a lot of places to sit, there's not a lot of shelters to sit in; so, you got to find, figure out some way to, uh, to uh, sit down or be able to lean against something…well let me see, if the grass is dry we sit on the grass if not we need to stand in the rain, lean against the pole…we've both leaned against telephone poles to wait on a bus and it's kind of really uncomfortable but you do what you have to do to get where you need to go.

POSSIBLE IMPLICATIONS

Urban built environments shape the bus user's experience, in turn shaping those structures built. Given that the focus of health parameters changes with the socio-political context, the embodied experiences of the bus users navigating the bus stops can illuminate the importance of other measurements of health, such as functional health. Implications from these results should help fill the gap toward a more effective active transportation program, such as the importance of a better bus stop design. Otherwise, a program might appear to succeed, but actual better health may not be obtained. Several recommendations are noted.

Change Language to Mobility

In order to maintain or increase the current health status of bus users the basic language for transit performance measures needs to change. The language needs to express the ability to be and to remain mobile. Not words that depend exclusively on quantitative distance, such as getting from point A to point B.

Add Functional Health to Transport Performance

Functional health status can be a robust measurement of transportation equity and performance. Markers should register the effects of adverse weather conditions, shoulder joint strain, and circulatory mini-shocks from repetitive walk-stand positioning. The aim is to change the viewpoint and prevent other maladies that are currently invisible.

Require Standard Structures to Bus Stops

Modify the bus stop policy to include minimal structural requirements. Shelters and benches should be located at every other bus stop regardless of the ridership count. To date, most bus stops are only a narrow sign post.

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