

# JANE JACOBS, QUANTIFIED

Exploring the legacy of the 20<sup>th</sup> century's most provocative urban theorist.

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# Table of Contents:

Introduction .....	3
<b>Part I. Jane Jacobs: Her Work, and Her Impact. ....</b>	<b>5</b>
Jane Jacobs' Impact.....	8
Jane Jacobs at Georgia Tech.....	11
Survey Results.....	12
<b>Part II. Testing the Four Generators of Diversity .....</b>	<b>23</b>
A Word of Caution .....	26
Evaluation and Selection Criteria.....	27
Overview of results.....	28
Review of Selected Literature .....	31
<i>Mixed Primary Uses</i> .....	31
<i>Concentration</i> .....	34
<i>Short Blocks</i> .....	36
<i>Aged Buildings</i> .....	37
<i>Multi-Criteria Studies</i> .....	40
Does the evidence reach a verdict? .....	45
<i>Transportation</i> .....	45
<i>Health</i> .....	46
<i>Social Well-Being</i> .....	47
<i>Economic Vitality</i> .....	47
<b>Part III. Beyond The Death and Life.....</b>	<b>49</b>
Do new ideas really need old buildings? .....	49
Thresholds .....	50
Can urbanism be transplanted to the suburbs? .....	51
The limitations of empirical analysis .....	52

Final Thoughts.....	53
Bibliography.....	55

## List of Tables:

<b>Table 1:</b> Survey pictures and descriptions. ....	18
<b>Table 2:</b> Effect categories and variables. ....	27
<b>Table 3:</b> Summary of research on mixed uses.....	29
<b>Table 4:</b> Summary of research on concentration .....	29
<b>Table 5:</b> Summary of research on small blocks.....	30
<b>Table 6:</b> Summary of research on aged buildings. ....	30

## List of Figures:

<b>Figure 1:</b> Google Ngram results for "Jane Jacobs." .....	10
<b>Figure 2:</b> Google Ngram search results for “Jane Jacobs” and “New Urbanism.” .....	10

## Introduction

Well into the middle of the 20th century, urban planners in the United States rallied around the banner of decongestion. Planners attempted to empty crowded slums, and introduce sunlight and greenspace into the city. Fighting urban density and congestion was deeply embedded in the DNA of planning. From the verdant beauty of Frederick Olmsted's Central Park, to the neatly dispersed garden cities of Ebenezer Howard, the founding fathers of planning fought to bring more nature to the huddled masses. In the post-war period, much of planning's utopian trimming was stripped away. And yet, the automobile allowed for a closer realization of the planning profession's dreams than ever before. The American suburb was not the well-planned garden city that planners had dreamed of, but it was full of sunlight, greenery, and open space. Despite growing concern over issues like traffic and pollution, the American consumer exhibited an endless appetite for this brave new suburban world. By 1960, the future of the American city was seemingly set in stone: more rational, less dense, and centered on the individual mobility.

And then, there was Jane Jacobs.

She emerged on the public stage as a journalist and neighborhood activist. But her most lasting contribution was *The Death and Life of Great American Cities*, a book that challenged every facet of mainstream American planning. If she had only attacked sprawling suburbs, freeways, commercial strips, and monotonous housing projects, her ideas may have been long forgotten. But Jacobs was not satisfied with being dissatisfied with the modern city: she boldly advocated for the virtues of the old city. Sidewalks full of pedestrians, narrow streets, densely packed buildings, and apartments stacked above storefronts were not a disease to be eradicated, or a necessary evil to be tolerated. According to Jane Jacobs, they were *good*. She made the case for this goodness through sharp

observation and vivid prose that delivered a sucker-punch to the dry language of zoning ordinances and comprehensive plans. Over time, even planners began to agree with her.

When one set of orthodox beliefs fall, the previously insurgent ideas often take their place. Before Jane Jacobs preached the gospel of traditional urbanism, planners emphasized the physical separation of uses, and low-population densities. Today, many planners (regardless of the type of community they work in), stand for the Jacobsian ideals of density and organized complexity. Ironically, some of the least questioned ideas in planning came from a woman who never stopped asking questions.

The genius of Jane Jacobs was her willingness to challenge every taboo. Her ability to listen to experts, and boldly disagree. When planners unquestioningly embrace her ideas, they honor the letter of her works, but not the spirit. This paper aims to offer a critical look at Jane Jacobs – just as Jacobs critically examined the intellectual giants of her time.

In the following pages, I will attempt to accomplish three goals: to estimate Jacobs' impact on urban planning, to investigate the evidence for Jacobs' theories, and to point out the questions raised by Jacobs' work that have never been answered. To these ends, the paper is divided into three parts. The first part of this paper will paint a brief picture of Jane Jacobs' life and work, and provide an assessment of her influence on past, present, and future planners. The second part provides an analysis of the empirical literature on urban form that has emerged since *The Death and Life* was written. The final part of the paper will point out Jacobs' unanswered questions, and attempt to address the inherent limits to our understanding of the city.

## Part I. Jane Jacobs: Her Work, and Her Impact.

It is often noted that Jane Jacobs had no academic training in architecture or planning – or any other subject, for that matter. But Jacobs’ status as an outsider is not simply a piece of trivia. A more conventional background would have produced [a](#) more conventional thinker. The development of Jacobs’ theories was intimately tied to her background and personal experience. To understand her ideas, it’s vital to know something about Jacobs herself.

Jane Jacobs will forever be associated with New York City. But her life’s journey didn’t begin – or end – there. She was born Jane Butzner in 1916, to a middle-class family in Scranton, Pennsylvania. At the time, Scranton was still a thriving center of industry. Jacobs grew up in an old house, a short streetcar ride from Scranton’s bustling downtown. It was her first taste of the possibilities of urban life. Scranton’s later economic collapse contributed to Jane’s interest in what made cities succeed -- and what made them fail (Alexiou, 2006).

In 1935, Jacobs moved to New York, where her older sister Betty had been living for several years. Already a budding writer, Jacobs roamed the city as a freelance journalist. Her pieces offered ground-level observations of the dynamics of neighborhoods, including New York’s flower and diamond districts. The journalist’s sensibility she cultivated on the street would become her greatest asset as a writer and intellectual. After her father’s death in 1937, Jacobs took two years of general studies coursework at Columbia College. She did well, but never completed a degree. Her life took another turn in 1944, when she met Robert Jacobs, a young architect. They were married a few months later.

For almost another decade, Jacobs’ continued to write for various publications, including the U.S. State Department’s *Amerika* (a Russian-language propaganda magazine). But by her mid-30s,

she had still yet to dip her toes into the issues that would make her famous. Her introduction to the world of urban planning came in 1952, when Jacobs was hired by *Architectural Forum* as a writer. Because she had no expertise in the field, her editors viewed her as a risky hire. In this case, the risk paid off.

Through her work at *Architectural Forum*, Jacobs came into contact with William Kirk, the founder of the Union Settlement House in East Harlem. At the time, East Harlem was the epicenter for New York's urban renewal projects. Kirk took Jacobs on trips through East Harlem, giving her a grand tour of urban renewal's human cost. Jacobs was deeply impacted by what she saw, and her work for *Architectural Forum* began to reflect a growing opposition to conventional urban planning as practiced in so-called slums.

In 1956, Jane Jacobs was invited to speak at a Harvard conference on urban design, due to the reputation she had gained at *Architectural Forum*. This turned out to be the turning point of her career. She delivered a rousing speech, attacking urban renewal policies for the damage they were inflicting on urban communities. In a fortunate twist of fate, William Whyte, then an editor of *Fortune* magazine, was in the audience. Whyte was impressed with Jacobs, and invited her to write a piece about cities for *Fortune*. The resulting article, "*Downtown is for People*" touched on many of the points that would reach a larger audience through *The Death and Life*. The article generated widespread acclaim, and Jacobs was offered a book deal to expound on her ideas. This book would consume the next three years of her life. Jacobs traveled to Boston, Chicago, Philadelphia, and St Louis, exploring neighborhoods and interviewing planners, architects, and community members. In 1961, *The Death and Life of Great American Cities* reached the presses. The conversation it sparked has yet to end.

*The Death and Life* opens with a bang: "This book is an attack on current city planning and rebuilding." During the 500-some pages that follow, Jacobs fulfils the promise of this sentence. The

book is a point-by-point deconstruction of her era's conventional wisdom. Jacobs asserts that crowded city streets create trust and safety, not alienation and crime; that city sidewalks are better for children than suburban yards; that streets ought to be designed to make automobile use more difficult; that green space is often useless and destructive; and above all, that cities cannot truly be planned by government bureaucrats. Her endless critiques are accompanied by a positive vision of how cities *should* function. Jacobs proposes that diversity is a city's strongest asset, and that city neighborhoods need to meet four conditions to properly generate diversity: mixed primary uses, small blocks, aged buildings, and concentration.

Her book caused an immediate stir in the popular press, not to mention the world of planning. And Jacobs was not finished stirring. Shortly after the publication of *The Death and Life*, Jacobs became a leader in the fight against the Lower Manhattan Expressway project – one of powerful planner Robert Moses's pet projects. Despite the overwhelming political clout behind the project, Jacobs and her allies derailed the project in a matter of months. A revised version of the project met a similar fate. When New York City planners subsequently attempted to conduct a study of Greenwich Village, for the purpose of applying a “blight” designation to the neighborhood, Jacobs was there to stand in their way. The study remained incomplete, and The Village escaped designation.

However, Jacobs' political fights went beyond local issues. Both Jane and Robert Jacobs were steadfast opponents of the growing conflict in Vietnam, and participated in anti-war demonstrations. As the parents of two draft-aged boys, the Jacobs' opposition to the Vietnam War was not an abstract question. Ultimately, the risk of their sons being drafted was too great. Robert found employment in Toronto, and the family moved north in 1968 to avoid the hand of Uncle Sam.



Toronto was meant to be a place of refuge, but Jacobs soon found herself surrounded by a familiar battle: a neighborhood struggle against an urban highway project. Like the Lower Manhattan Expressway in New York, the Spadina Expressway was designed to carve a path through the heart of Toronto. And the Jacobs family's new home was right in its way. This time, however, others would lead the fight. Although Jacobs helped advise the movement against the Spadina, she declined a leading role. Jacobs had spent the last decade of her life fighting; it was time to return to her typewriter.

In 1970, Jacobs published her second book: *The Economy of Cities*. Just as *The Death and Life* had challenged the conventional wisdom of urban planning, *The Economy of Cities* challenged the conventional wisdom of macroeconomics. Among other things, Jacobs argued that the development of cities preceded agriculture, rather than being the result of permanent agriculture. Jacobs also asserted that cities, not nation-states, were the natural unit of economic systems.

Although none of her other works ever gained the recognition of *The Death and Life* and *The Economy of Cities*, Jacobs continued to write until the end of her life. In *Cities and the Wealth of Nations* (1984), Jacobs expounded on the relationship between national and city economies she first identified in *The Economy of Cities*. *Systems of Survival* (1992) and *The Nature of Economies* (2000) offered wide-ranging Platonic dialogues on morality and economics. Her final work, *Dark Age Ahead* (2004), delivered a pessimistic assessment of western civilization's future. Jane Jacobs passed away in 2006, at the age of 89.

## Jane Jacobs' Impact

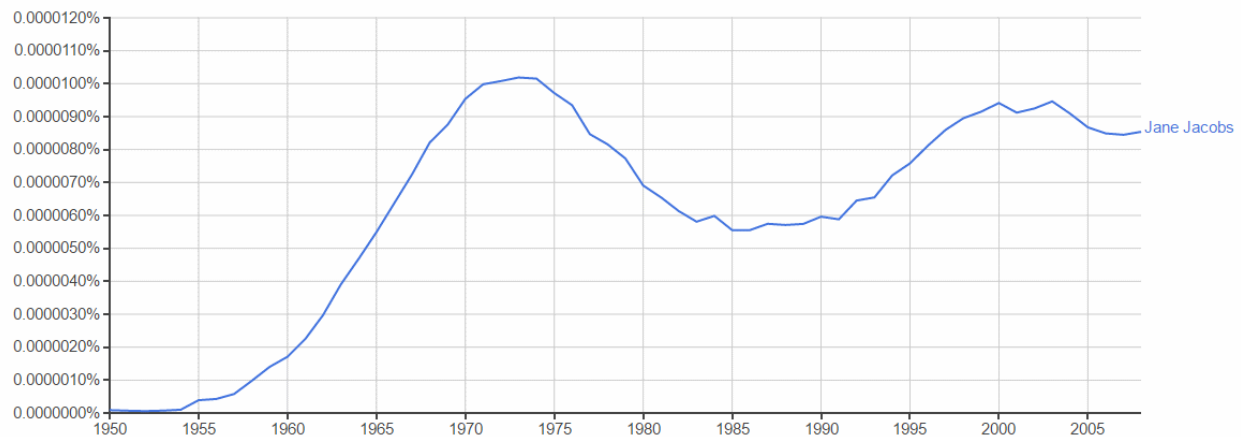
The fact that Jane Jacobs made a significant impact on urban planning is often taken for granted. On the other hand, quantifying the extent of this impact is difficult. Once ideas are released

into the wild, they can shed all signs of their original authorship. But if you know where to look, it's easy to spot Jacobs' fingerprints.

Traces of Jacobs' influence can be found in comprehensive plans around the country. For example, the urban design section of Atlanta's comprehensive plan praises traditional "pedestrian-scale block sizes" and "mixed-use environments," while bemoaning the advent of "large superblocks" and "zoning regulations that places the emphasis on the automobile and separation of land uses" (Atlanta, 2011). Similar sentiments are easy to find in popular sources of urban design ideas that often trickle into official plans. The Smart Growth Manual, a brief volume that summarizes the principles of Smart Growth and New Urbanism, includes several nods to Jacobs, including the importance of "eyes on the street," and slightly-modified versions of her four generators of diversity (Duany, Speck, & Lydon, 2010).

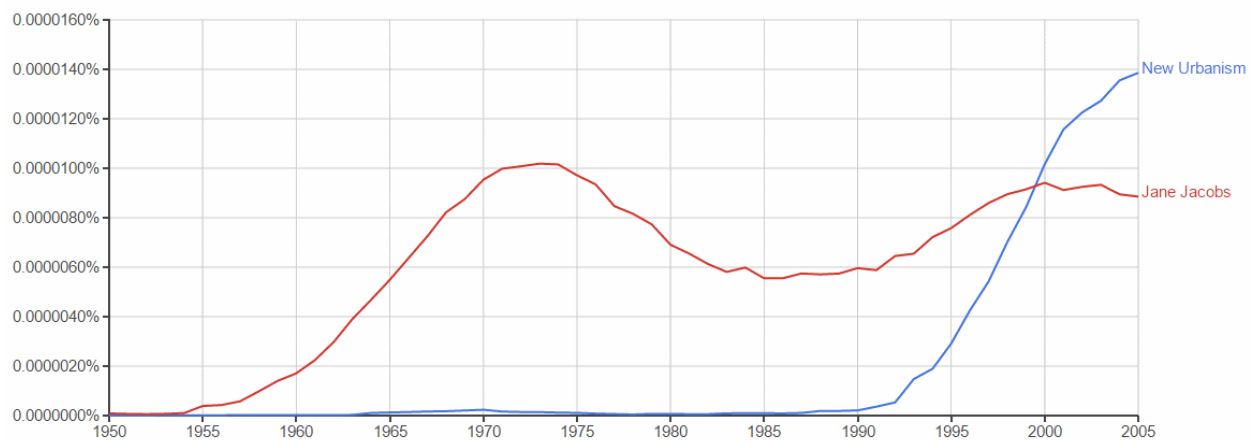
One clear measure of influence for an intellectual is the number of times their work has been mentioned by other authors. Given the sheer amount of literature published every year, measuring this type of printed recognition might sound impossible. But a tool from Google offers a way to do just that. Google's Ngram Viewer allows you to search for phrases within Google's exhaustive database of English literature. Ngram Viewer then graphs the year-by-year change in the percentage of works that contain that phrase. The results of an Ngram search for "Jane Jacobs" can be seen in **Figure 1** below:

Figure 1: Google Ngram results for "Jane Jacobs."



As one might expect, mentions of Jane Jacobs began to rise rapidly following the publication of *The Death and Life* in 1961. What is more remarkable is how resilient her popularity has proved. After a decline during the 1980s, mentions of Jane Jacobs have steadily increased, and are almost at their previous peak levels. It is likely that Jacobs' rebound in popularity during the 1990s was at least partially due to the rise of New Urbanism. An Ngram search for both "Jane Jacobs" and "New Urbanism" reveals a closely-linked trajectory, as seen in **Figure 2**:

Figure 2: Google Ngram search results for "Jane Jacobs" and "New Urbanism."



Authors are still talking about Jacobs – but has her work been accepted in the classroom? There is strong evidence that it has. Klosterman (2011) has conducted a survey of planning courses across a sample of 46 U.S. planning schools. According to the survey, 38 percent of theory courses assigned some material by Jane Jacobs, while 29 percent assigned *The Death and Life* as a reading. Academics and practitioners have also noted Jane Jacobs as a major influence of planning theory in England, Germany, Spain, and the Netherlands (Schubert, 2015). More popular, and less academic measures, also point toward Jacobs' influence. On Planetizen, a popular urban planning website, a month-long online poll ranked Jane Jacobs as the most important figure in urban planning (Planetizen, 2009). On the same site, the editors placed *The Death and Life* on the top of their “Top 20 Urban Planning Books” (Madera, 2007).

Jane Jacobs' impact has undoubtedly been both direct and indirect. Although *The Death and Life* continues to be read and discussed by planners, academics, and planning students, many people are exposed to Jacobs' ideas through works that were influenced by her. The Smart Growth and New Urbanism movements, in particular, bear Jacobs' intellectual marks – but individuals who belong to these movements have often never read Jacobs herself. As one biographer has commented, “people have ideas that originated with her, but don't know the origin” (Alexiou, 2016).

## Jane Jacobs at Georgia Tech

Given the strong possibility of indirect influence, there are two separate questions that should be asked: how closely do planners' views resemble Jacobs' own, and are these planners personally aware of Jacobs' work? Using an online survey, I've attempted to answer these questions, using the planning students and faculty of Georgia Tech as the studied population.

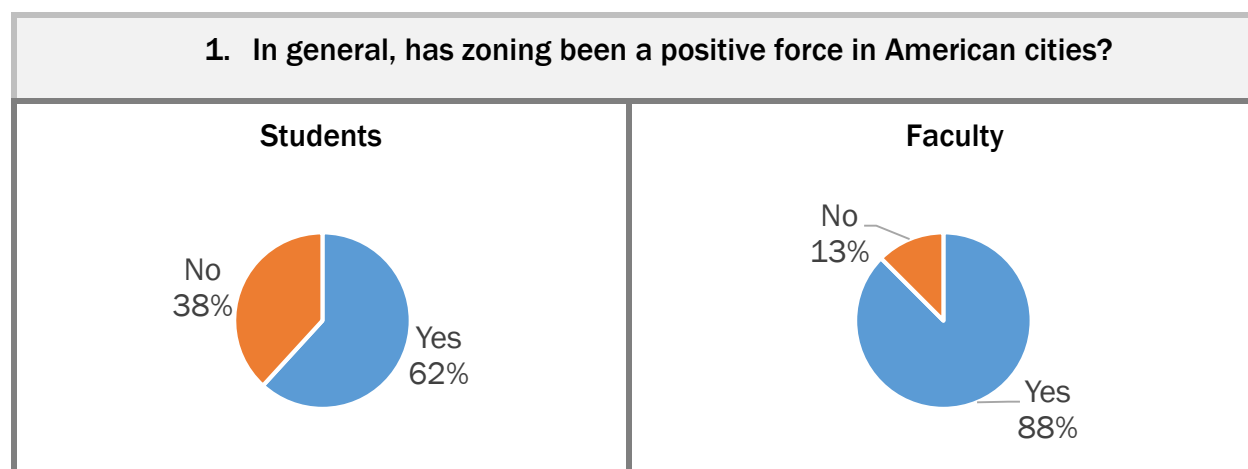
Using one school as a proxy for planning schools in general is inherently problematic. However, there is no reason to believe that members of Georgia Tech's planning program differ

significantly in outlook from those at other planning schools. Georgia Tech planning students may be disproportionately drawn from southern states, but the student body includes representatives from many other regions of the country, and a significant contingent of foreign students. The faculty of Georgia Tech also hail from a geographically diverse range of communities, and are themselves the products of planning programs from across the country. Although Georgia Tech may not be representative of *every* planning school, the survey results should offer a reasonably clear glimpse at the views of individuals involved in planning education in the U.S.

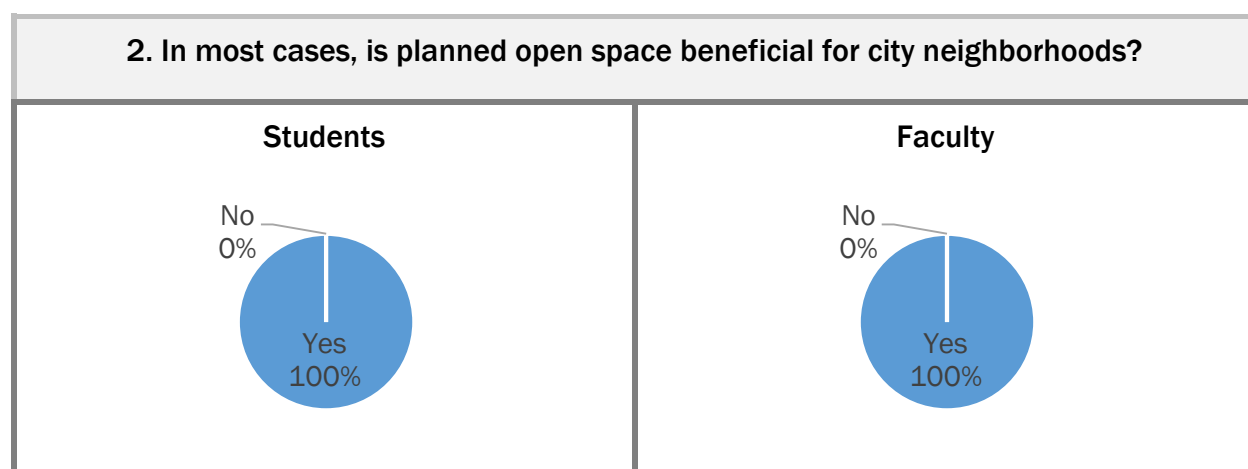
## Survey Results

In total, 55 students responded to the survey – a response rate of 45%. Out of 18 full-time faculty, 9 responded. Unfortunately, the small number of faculty responses make it harder to come to solid conclusions about faculty views.

The survey opens with three yes-or-no questions related to pieces of conventional wisdom that Jacobs challenged in *The Death and Life*. Answers to these question are a strong indication of the amount of influence Jacobs has had on the theory of planning. They also demonstrate the resilience of some ideas espoused by earlier generations of planning theorists.

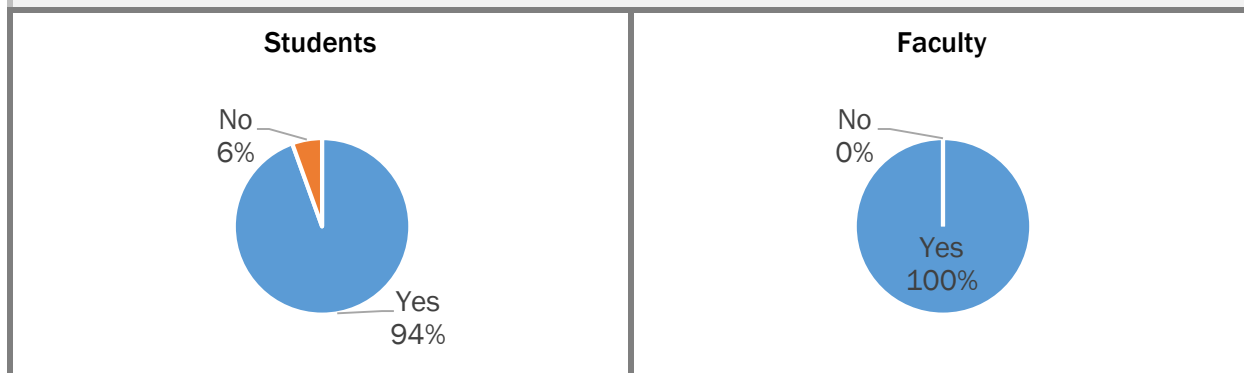


Although the ayes still have it, it's clear that planning students have mixed opinions on zoning – arguably the primary legal mechanism of urban planning in the United States. Jane Jacobs may not be the only person responsible for this ambivalence, but it hard not to see her impact on student's minds. On the other hand, the majority that remains in favor of zoning is evidence that planning students are not *purely* Jacobsian – a picture that becomes clear as the survey progresses. Faculty are less conflicted about zoning. This could be a sign of a stronger acceptance of traditional planning theory, or perhaps even the result of personal experience with property ownership.



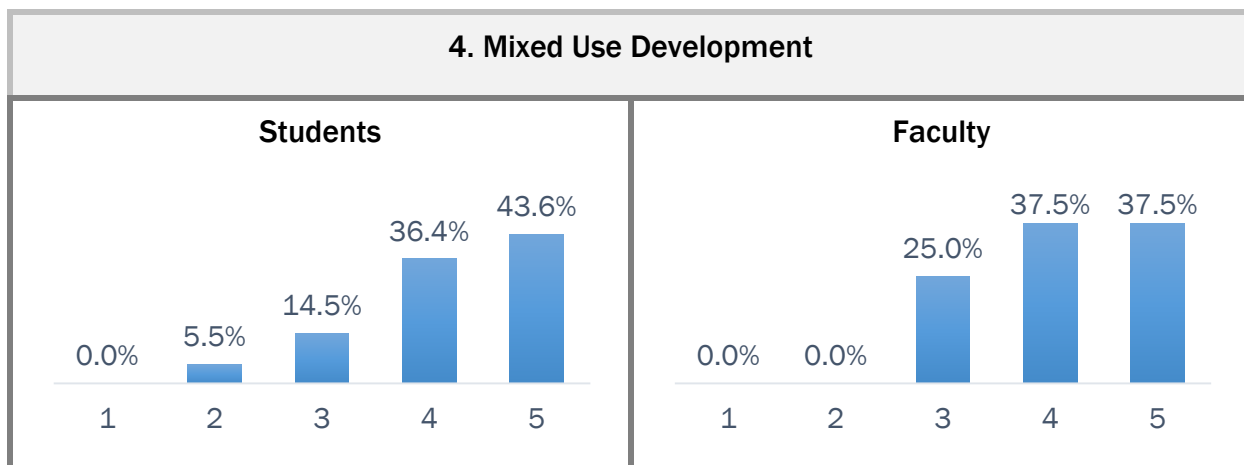
This question may seem puzzling on the surface. Who would oppose planned open space? Well, Jane Jacobs, for one. Jacobs was highly critical of the fact that “neighborhood open spaces are venerated in an amazingly uncritical fashion, much as savages venerate magical fetishes” (Jacobs, 1993). In Jacobs’ view, open spaces *could* be beneficial, but they were inherently risky. Although the nature of this question is perhaps a bit imprecise, the results seem to show that open space is an area where Jacobs’ writings have not had as much impact as others.

### 3. Does an increase in pedestrian activity on a street help reduce its level of crime?

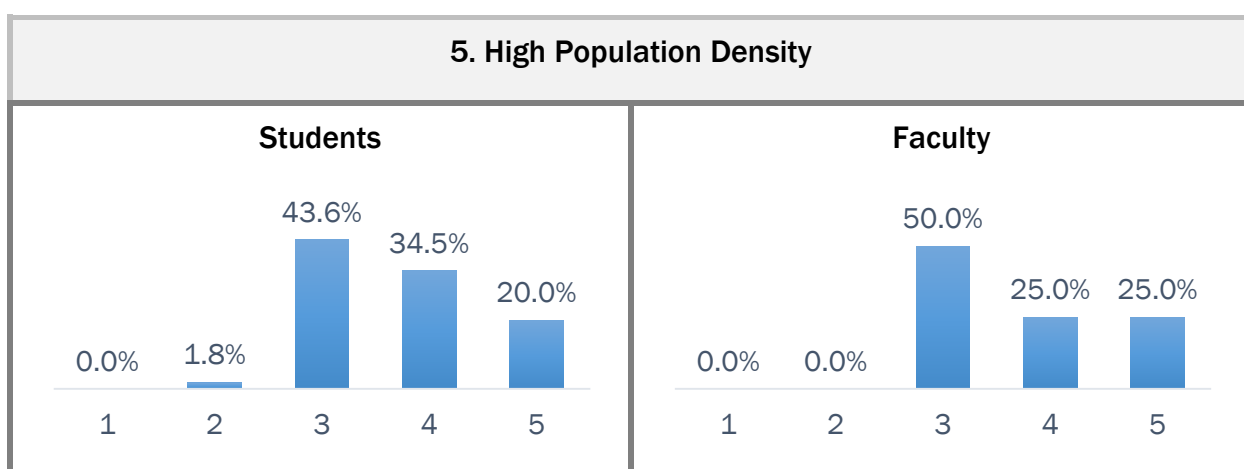


The concept of “eyes on the street” is undoubtedly one of Jacobs’ best-known creations – and it seems to be widely accepted by the Georgia Tech planning community. Previous generations of planners may have viewed crowded streets as incubators of crime, but the conventional wisdom has shifted to the idea of strength in numbers. Even so, some caution should be used in interpreting these results. The fact that respondents believe street activity *helps* reduce crime does not mean they believe it is the primary determinant of crime levels.

In the next set of four questions, respondents were asked to rank the importance of various neighborhood characteristics on a scale from 1 (not important) to 5 (very important). Respondents were not told that these characteristics were derived from the four generators of diversity listed in *The Death and Life*. Overall, the responses to these questions reveal a significant level of support for Jacobsian ideals.

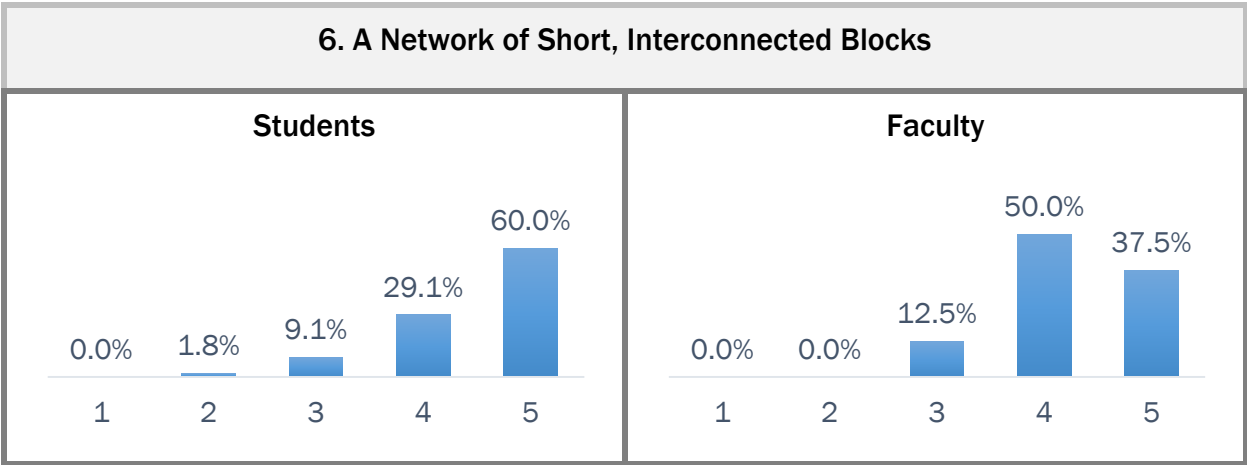


Both students and faculty rate the importance of mixed uses very highly. This is hardly surprising, given that mixed-use development has become a ubiquitous planning concept. These responses also offer a clue about how the earlier question about zoning should be interpreted. In the past, zoning was synonymous with the separation of uses. Today, thanks to influence of Jacobs and others, zoning codes increasingly facilitate a mixture of uses. Planning students may view zoning as a positive thing, but the zoning codes they have in mind may be quite different from the ones Jacobs confronted in 1961.

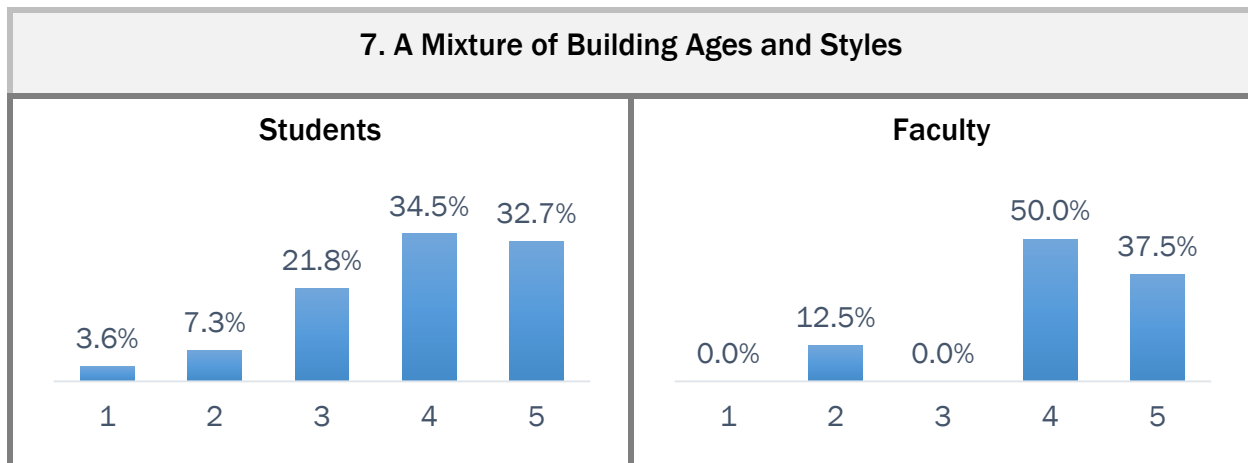




Advocating for density was controversial in Jacobs’ day, and it remains controversial among many city residents. The respondents, on the other hand, largely agree that density is important for a successful urban neighborhood. However, support for density is slightly tempered compared to the overwhelming importance respondents placed on mixed-use development.



The proliferation of monolithic superblocks enraged Jane Jacobs. Survey respondents seem to agree with this sentiment: more students ranked short blocks as “very important” than any of the other elements of urban form. The level of importance assigned to block structure is logical, from a planning perspective. Unlike other neighborhood characteristics, the network of blocks and streets is almost impossible to change – making it imperative to get it right the first time.



Although both students and faculty generally place a high level of importance on the presence of diverse buildings, the overall distribution of opinions is more mixed than it was on the previous elements. It's also the only element of urban form that received a ranking of 1 (not important) from any respondents. This result is consistent with a phenomenon that will be explored later: the tendency to separate “aged buildings” from Jacobs’ other generators of diversity.

Table 1: Survey pictures and descriptions.



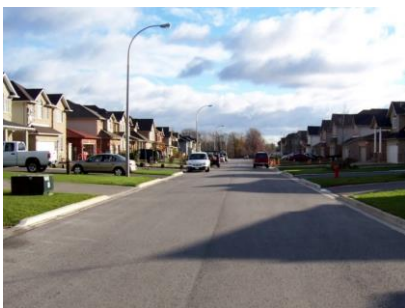
**A.** *Moderate-density neighborhood with detached houses.  
(Traditional or new-urbanist style development).*



**B:** *Low-rise, dense urban neighborhood.*



**C.** *Very dense traditional urban neighborhood.*

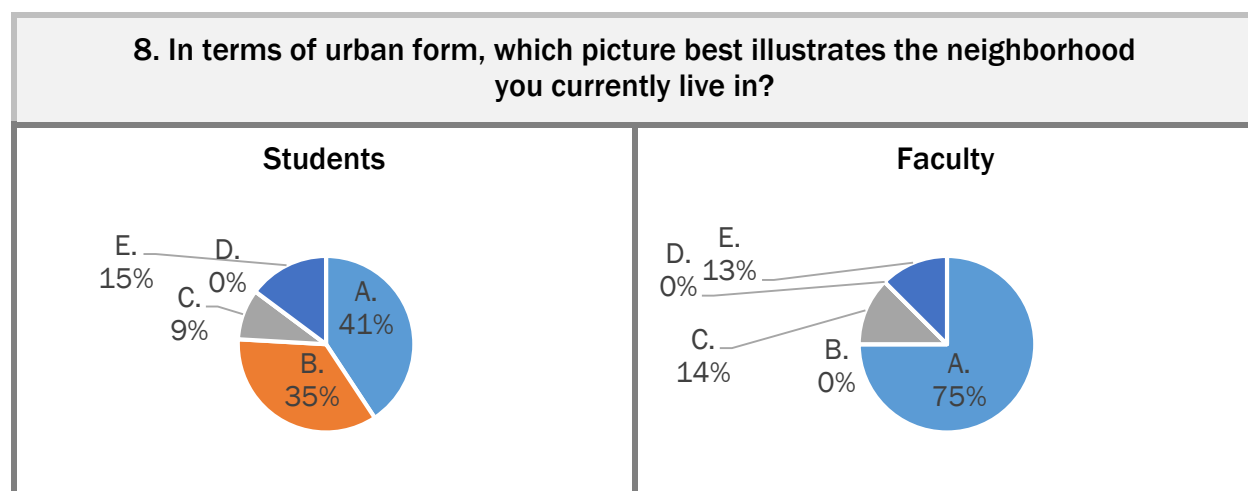


**D.** *New, low-density suburban neighborhood.*



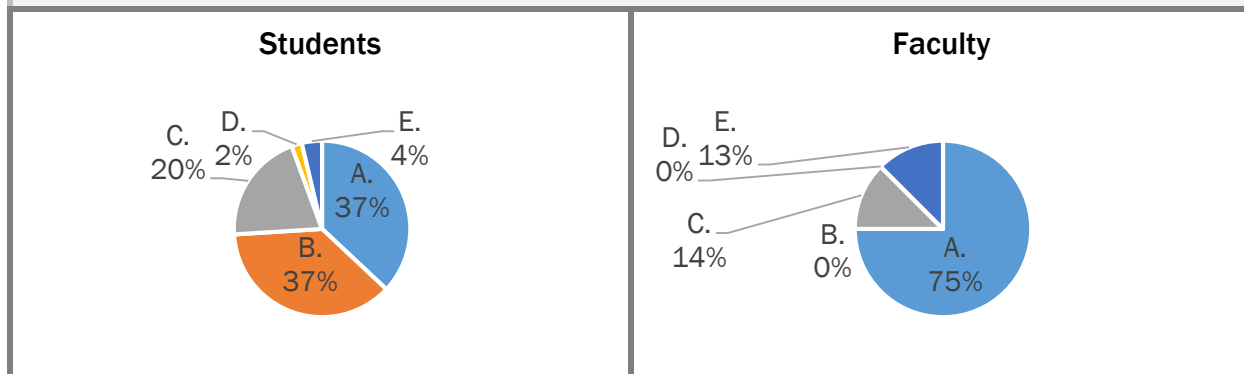
**E.** *Semi-rural suburban neighborhood. (Common in Atlanta).*

The next set of three questions were based on a series of pictures (**Table 1**), each one depicting a distinct style of development. The goal of this section was to gauge how personal taste and experience interact with the views gauged by the previous questions. Planners may talk the Jacobs talk – but do they want to live in her kind of neighborhood?



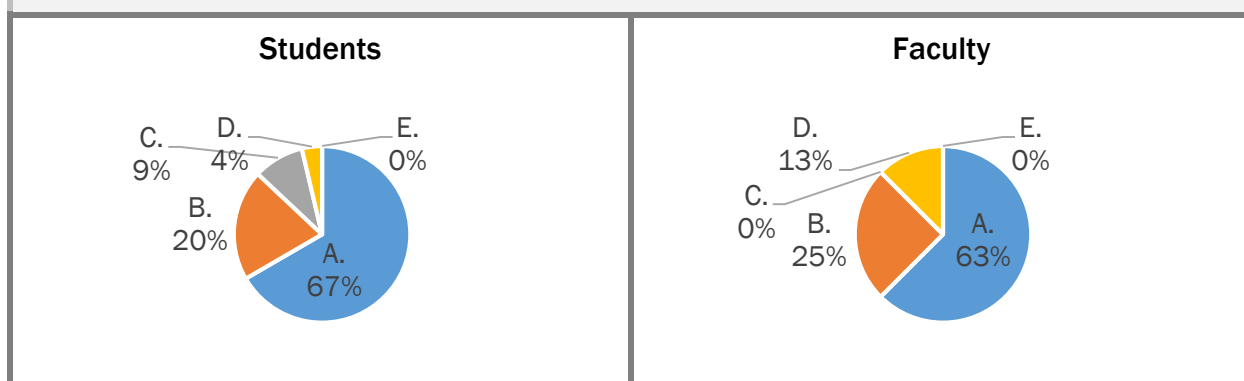
Both students and faculty primarily live in traditional residential neighborhoods. This may not be the most Jacobsian choice, but the responses to this question generally reflect the supply of neighborhoods in the Atlanta area. Outside of the high-rises of Midtown and Buckhead, Atlanta neighborhoods tend to be dominated by single family homes. It should also be noted that a strong minority of students (44 percent) *do* live in some form of dense, urban neighborhood.

### 9. Which picture best illustrates the kind of neighborhood you would like to live in, in an ideal situation?



Given student support for Jacobsian ideals, and the general stereotype that young people (not to mention young people involved in planning) strongly prefer dense cities, the student responses are eye-opening. There is little gap between the Atlanta neighborhoods that students live in, and where they want to be. Granted, the numbers *do* shift in favor of dense urban environments – 57 to 43. Faculty, on the other hand seem to have landed *exactly* where they want to be. Their results for current and ideal neighborhoods are identical.

### 10. Which picture illustrates the best kind of environment to raise children in?



Jane Jacobs argued that dense city neighborhoods were an ideal environment for children, but most survey respondents appear to disagree. A strong majority of students and faculty identify

traditional residential neighborhoods as the best environment for children. Interestingly enough, while no faculty respondents expressed a preference for low-rise, high-density neighborhoods, 25 percent identified this neighborhood type as the best environment for children.

The final question of the survey was open-ended: respondents were asked to name up to three people who have influenced their views on planning the most. This question was designed to measure how many respondents directly credit Jacobs for their views on urban form. Forty-five percent of student respondents listed Jane Jacobs as a top influence – far more than any other figure. On the faculty side, only one respondent listed Jane Jacobs as a strong influence (12 percent of the very small number of faculty responses).

From these results, it seems clear that Jane Jacobs has made an impact on the planning academy. Georgia Tech planning students and faculty overwhelmingly see density, short blocks, and mixed-uses as a good thing. They believe that crime can be reduced by a more active street. A strong plurality of students cites Jacobs as an influence on their views.

On the other hand, pre-Jacobsian planning theory has not vanished from the minds of planners. Zoning is still largely considered a good thing, even though opinions may be more mixed than they would have been in the 1960s. Students and faculty alike continue to pine for more open space. A house – although perhaps an older one with “character” -- is still seen as the proper place to raise children.

The fact that Georgia Tech students and faculty do not cling to a purely Jacobsian viewpoint is not particularly shocking. Nor is Jacobs’ absence from the list of thinkers who have influenced faculty. Jacobs was not an academic, and her work was widely criticized by the prominent planners of her day. Throughout her life, she remained an outsider to the planning academy and the professional practice of planning alike. If you spend a significant amount of time studying planning theory in a formal setting, Jane Jacobs will likely be crowded out by more credentialed scholars. And

yet, 50 years after the publication of Jacobs' greatest work, her voice is still echoing in the minds of future planners and their mentors. Even those who don't count Jacobs as an influence have her ideas lodged firmly in their minds. This would be an accomplishment for an intellectual in any field, let alone an outsider with no academic training, derided by critics as a mere housewife.

A final statistic is instructive: while 44 percent of students cited Jacobs as an influence, only 2 percent cited Lewis Mumford – the preeminent urbanist of the mid-20<sup>th</sup> century, and a vocal critic of *The Death and Life*. It would seem that “Mother Jacobs’ Home Remedies,” as Mumford condescendingly labeled Jacobs’ ideas, have outlasted their critics (Mumford, 1962).

## Part II. Testing the Four Generators of Diversity

The chief question behind any critical analysis of Jacobs' work should be simple: how strong is the evidence for Jacobs' theories? But this question is naturally followed by another: which theories? Jane Jacobs was an expansive thinker, and *The Death and Life* contains rambling discourses on dozens of subjects. This is incredibly stimulating for readers – and incredibly frustrating for anyone who wants to conduct a formal analysis.

For the sake of feasibility, the scope of my analysis will be reduced to a *subset* of Jacobs' ideas. To this end, I've decided to focus on the “four generators of diversity.” As the reader may recall, the four generators of diversity are the characteristics Jacobs' believed were responsible for generating successful neighborhoods: mixed primary uses, small blocks, aged buildings, and concentration. There are several reasons why these “generators” are ideal subjects for analysis. The four generators of diversity are measurable, and relatively well-defined. They're a central component of Jacobs' thought, and she continually refers back to them throughout *The Death and Life*. Out of all of Jacobs' ideas, the four generators of diversity are the most cited in other works on urban design. And perhaps most importantly for the sake of this paper, each of the four generators has accumulated a body of empirical literature testing their effects on urban life.

My analysis of the evidence for Jacobs' theories will take the form of a review of the literature on each of the four generators of diversity. But before we dive into this review, a brief overview of each of the four generators – in Jacobs' own words – is in order.

### Mixed Primary Uses



*“The district, and indeed as many of its internal parts as possible, must serve more than one primary function; preferably more than two. These must insure the presence of people who go outdoors on different schedules and are in the place for different purposes, but who are able to use many facilities in common.”* – Jane Jacobs

Mixed-use has become such a familiar concept that it’s easy to lose sight of what attracted Jacobs to the concept in the first place. Mixed uses were not simply important because they allow residents and workers to easily access services, or because they made a neighborhood more “walkable.” For Jacobs’, mixed uses were key because they generated street activity throughout the day – and night. This is why mixed *primary* uses were so important to her. An office building with one or two lunch spots on the ground floor would hardly qualify as mixed-use to Jacobs. These sorts of “secondary uses” are solely dependent on the primary use, and can’t be expected to maintain street activity outside of working hours.

## Concentration

*“The district must have a sufficiently dense concentration of people, for whatever purpose they may be there. This includes people there because of residence.”* – Jane Jacobs

Although Jacobs’ concept of concentration was not limited to population density, she regarded population density as the most important form of concentration. (Similarly, most of the subsequent literature review on concentration will focus on population density). Given the central role of de-concentration in traditional planning theory and practice, Jacobs’ belief that high densities were actually desirable was a paradigm shift. Jacobs believed that planners had unfairly equated *overcrowding* with *density*. According to Jacobs, density properly refers to the number of dwelling units per acre, while overcrowding refers to an excess of people residing in each dwelling unit. While overcrowding was a real problem, density was an absolute necessity for a thriving city. To keep a

lively mix of activities in a neighborhood, that neighborhood needed enough people to keep them running.

## Short Blocks

*“Most blocks must be short; that is, streets and opportunities to turn corners must be frequent.”* — Jane Jacobs

Jacobs’ belief in the importance of short blocks was heavily influenced by her experience of life in Greenwich Village — a neighborhood with irregular blocks half the size of Manhattan’s typical grid. Small blocks were essential to combat the “blight of dullness,” that Jacobs attacks throughout *The Death and Life*. Smaller blocks mean more intersections, more chances for urban residents to take different paths, and less visual monotony. In many ways, small blocks are emblematic of Jacobs’ conception of the city — an environment based on fluidity, and not homogeneity.

## Aged Buildings

*“The district must mingle buildings that vary in age and condition, including a good proportion of old ones.”*

— Jane Jacobs

Jacobs did not argue for aged buildings on aesthetic or cultural grounds. In fact, Jacobs specified that aged buildings did not refer to “museum-piece old buildings” or “old buildings in an excellent and expensive state of rehabilitation.” Rather, Jacobs believed neighborhoods needed buildings that were old, and perhaps a bit run down. These buildings were inexpensive, and could incubate businesses that would otherwise be unable to make rent. This idea is summed up in one of Jacobs’ more popular quotes: “new ideas must use old buildings.” From Jacobs’ point-of-view, large developments exclusively made of new buildings were fated to dullness, since only the most established tenants could afford their spaces.

## A Word of Caution

I want to emphasize that the results of this literature review shouldn't be interpreted as directly proving or debunking Jacobs' original ideas. In *The Death and Life*, Jacobs emphatically limited the scope of her arguments to cover the book's eponymous "great cities." Small towns and suburbs were simply too different from cities to assume that they would be subject to same dynamic. She also believed that all four of the generators were necessary to create a successful, diverse neighborhood. Policies that increase a single generator (concentration, for instance), but neglect others, fall short of Jacobs' original intentions.

Unfortunately, if the scope of this analysis was restricted to literature that tests the generators of diversity on Jacobs' own terms, source material would be in short supply. Even studies that are explicitly framed as responses to Jacobs ignore her many caveats. There are several reasons why this is the case. For researchers, capturing the exact details of Jacobs' ideas in an empirical study would be difficult. Jacobs' observational work is based on the complex interplay of all four generators acting in very specific areas. Empirical analysis, however, works on a coarser level, and is incapable of the sort of nuance that Jacobs' qualitative approach produced.

Another reason for the gap between Jacobs' theories and the reviewed literature is that the accumulated literature on urban form has largely come as a response to ideas *influenced by Jacobs*, rather than the original ideas themselves. As Jacobs' ideas have been adapted into concrete plans by the advocates of New Urbanism and Smart Growth, much of their complexity has been reduced. It might be better to think of this analysis as a snapshot of the evidence for Jacobsian planning theories -- ideas that had their genesis with Jacobs, but have since taken on a life of their own. Still, even if the reviewed studies are *imperfect* tests of Jane Jacobs' thought, they represent the best available empirical evidence for the validity of her ideas.

## Evaluation and Selection Criteria

The point of any research is to answer a question. My research question is simple: are the four generators of diversity *good* for cities? This broad category of “good” includes many of the things that Jacobs’ specifically discussed, but isn’t limited to them. For example, increasing physical activity wasn’t a significant goal of urban design when Jacobs began her work. Today, thanks to the obesity epidemic, a great of deal of research has been devoted to this topic. After reviewing the literature, it became apparent that most of the research on the four generators of diversity measured four broad categories of effects. **Table 2** below lists these categories, along with examples of research metrics that would cause a study to be assigned to each category.

*Table 2: Effect categories and variables.*

Effect Category	Example Metrics
<b>Active Transportation</b>	<i>Transit ridership, rate of walking trips, rate of auto trips.</i>
<b>Physical Health</b>	<i>BMI, amount of daily physical activity.</i>
<b>Economic Vitality</b>	<i>Property values, employment rate, housing vacancy rate, rate of business creation.</i>
<b>Social Well-Being</b>	<i>Social capital, levels of social control, crime rates, perception of crime.</i>

My analysis assumes that common planning assumptions are correct -- for example, that it is desirable to decrease automobile use, and increase walking and transit use. Although other studies might aim to debunk these assumptions, this analysis is only concerned with whether the generators

of diversity have the desired effect on these outcomes (a “good” effect), not whether these outcomes are actually desirable.

Studies included in the review had to be based on an empirical, quantitative analysis that tested the effects of one or more of Jacobs’ generators of diversity. In some cases, variables that closely resembled one of the generators of diversity were accepted as proxies, if there was a lack of available research otherwise. Although the vast majority of the reviewed studies were published in peer-reviewed journals, a handful of unpublished studies were also selected.

After reading each study, I recorded the effect it documented, and grouped it into one or more of the categories listed previously. To avoid creating the false appearance of precision, effects in each category were classified on a simple three-step scale: negative, unclear, or positive. Thus, if a study found that population density was correlated with a decline in crime, I recorded the study’s findings as a *positive effect on social well-being*.

## Overview of results

The tables that follow offer an overview of the selected literature on each of Jacobs’ generators of diversity:

Table 3: Summary of research on mixed uses.

Mixed Primary Uses			
	Negative Effect	Unclear Effect	Positive Effect
Active Transportation	-	4	8
Economic Vitality	1	1	-
Social Well-Being	4	2	4
Physical Health	-	1	3
<b>Total:</b>	<b>5</b>	<b>8</b>	<b>15</b>

Table 4: Summary of research on concentration

Concentration			
	Negative Effect	Unclear Effect	Positive Effect
Active Transportation	-	3	7
Economic Vitality	-	1	-
Social Well-Being	1	3	1
Physical Health	-	3	1
<b>Total:</b>	<b>1</b>	<b>10</b>	<b>9</b>

Table 5: Summary of research on small blocks.

Small Blocks			
	Negative Effect	Unclear Effect	Positive Effect
Active Transportation	-	3	4
Economic Vitality	-	1	1
Social Well-Being	1	2	1
Physical Health	-	2	1
<b>Total</b>	<b>1</b>	<b>8</b>	<b>7</b>

Table 6: Summary of research on aged buildings.

Aged Buildings			
	Negative Effect	Unclear Effect	Positive Effect
Active Transportation	-	-	1
Economic Vitality	-	-	4
Social Well-Being	-	2	3
Physical Health	-	1	-
<b>Total:</b>	<b>0</b>	<b>3</b>	<b>8</b>

A few patterns begin to emerge in these tables. First of all, a great deal of research has *failed* to find clear effects stemming from the generators of diversity. Secondly, the most consistent category of positive effect is active transportation. Outside of these general patterns, a closer look at the literature is needed to gain a better picture of the level of evidence for the benefits of Jacobsian ideals. The detailed review that follows will begin with studies that primarily focus on a single

generator of diversity, and then move on to studies that cover several generators of diversity. It will also examine some of the particular challenges inherent in measuring and testing each of the four generators.

## Review of Selected Literature

### *Mixed Primary Uses*

In the decades since Jane Jacobs opined on the importance of mixed primary uses, “mixed-use” has become a constant refrain for planners, developers, and urbanists. The most common way to quantify the mixture of uses in an area is to use an entropy index, which measures how evenly land uses are distributed in an area. Using this kind of index, a neighborhood with completely homogenous land use would receive a value of 0, while a neighborhood with an even mix of uses would receive a value of 1. A major disadvantage of using a simple numerical index is that the resulting value fails to reflect the relative amounts of each distinct use. Another problem with the way quantitative studies measure mixed uses is that there is usually no way to distinguish between what Jacobs’ called “primary uses” and “secondary uses.” This weakness should be kept in mind.

A classic rationale for use-based zoning is that nonresidential uses are often nuisances in a residential context. A large body of research supports this claim. In a study of urban neighborhoods in Philadelphia and Baltimore, researchers found that larger proportions of nonresidential uses were associated with increased crime, and the loss of social control (Taylor, Koons, Kurtz, Greene, & Perkins, 1995). As negative as these findings seem, it’s important to note that vacant land was counted as a “nonresidential use” for the purposes of the study. Considering the amount of vacant land in many economically-depressed residential areas, this could have significantly distorted the findings of the study.



However, a later study from Kurtz, Koons, and Taylor (1998) provided additional evidence supporting the claim that nonresidential uses increase crime and deterioration. The study covered the Logan neighborhood of Philadelphia, and measured the impact of non-residential uses on service calls to the police, levels of social control, and vandalism. In this study, non-residential uses were divided into two categories: viable storefronts, and non-residential uses other than stores and vacant lots. Contrary to what Jacobs' theory might predict, active stores were associated with more vandalism and calls to the police. Non-residential uses other than stores had a negative impact on social control, while stores had an inconsistent effect. Rather than providing more eyes on the street, the researchers theorized that commercial uses acted as magnets for potential criminals.

A more recent Philadelphia-area study found that residents of mixed-use neighborhoods were also likely to *perceive* higher levels of crime and incivilities (McCord 2007). Unlike the previous studies, this study included data from the entire city of Philadelphia, rather than a single neighborhood. McCord based his research on the theory that some uses are “crime generators” and “crime attractors.” Crime generators are businesses that draw more people into an area, increasing the potential for crime; crime attractors are specific uses that can encourage criminality (such as bars or pawn brokers). McCord's analysis of the 2003 Philadelphia Area Survey uncovered a strong correlation between the presence of *both* use classes and resident perceptions of crime and incivilities.

A potential benefit of mixed-use neighborhoods is their ability to facilitate interaction between residents, possibly increasing social vitality. A study conducted by Leyden (2003) in Galway, Ireland, found that mixed-use neighborhoods were associated with higher levels of social capital. Galway was selected as a test case due its diversity of neighborhood types, and relative demographic homogeneity. Unlike most American cities, Galway never experienced “white flight” from its core, making it easier to measure the effect of urban form without attempting to unravel complex

socioeconomic and racial issues. Leyden distributed a survey to residents of 8 Galway neighborhoods, in order to measure four aspects of social capital: how well residents knew their neighbors, levels of political participation, trust in people, and social engagement. Living in a mixed-use neighborhood had a statistically significant effect on all four measures. In the case of “trust in people,” living in a mixed-use neighborhood had a greater impact than any other variables.

Although Jacobs focused on mixing uses at the neighborhood scale, and not *necessarily* mixing uses in the same building, planners are often supportive of large, mixed-use developments as tools to generate urban diversity. DeLisle (2013) has conducted an extensive survey of mixed-use developments in Seattle, to assess their economic performance. The findings of the study were less than glowing. Key indicators of economic distress, including vacancy, were higher in mixed-use developments. And for those hoping that mixed-use developments would create vibrant, street-level retail, the findings were even more disappointing: retail only accounted for 17 percent of the tenant mix in mixed-use developments. The vast majority of tenants were personal and professional services (including healthcare providers). While useful, these types of businesses are unlikely to generate significant foot traffic throughout the day, or allow residents to run their daily errands within walking distance.

As mixed-use development spreads to the suburbs, many residents worry that these developments will only increase automobile congestion. However, planners often argue that a mixture of uses will reduce the number of vehicle trips required. Cervero (1988) examined the effects of mixed-uses at 57 of the largest suburban employment centers in the country. In this case, the mixed-use boosters get it right. A greater mixture of uses (measured by a decline in the share of floor area devoted to office space) was associated with fewer single-occupant-vehicle trips, and with an increase in walking and cycling trips.

## *Concentration*

Concentration (in the form of population density) is one of the most frequently cited generators of diversity -- and one of the most controversial. Even though Jacobs emphasized the importance of each generator, it's not a stretch to consider density the lynchpin of her conception of urban life. Without the sheer mass of people that density provides, it's difficult to support the diversity of businesses, entertainment options, and cultural institutions that define urban life. On the other hand, density is one of the elements of urban life that Americans fear the most. Attempts to build up density are almost always met with vigorous political opposition, empowered by local control of zoning.

Advocating density is politically fraught; measuring density, on the other hand, is relatively straightforward. The most common measure is gross population density, which is simply the number people living in a given place, divided by the area of that place. However, alternate measures of density can be used, including employment density, building density, and residential density. A thornier issue is choosing the area that density should be calculated for. Some studies look at density across an entire city, or even a metropolitan area. Others might look at the density of neighborhoods, census tracts, blocks, or some other invented geographic unit. In general, finer-grained measures are preferable, since city or metropolitan-wide measures can be so diluted that they fail to reveal any significant patterns.

Theoretically, increased density should make walking a more viable form of transportation, since city residents will be closer to possible destinations. Ann Forsyth, Kathryn Schmitz, and Michael Oakes of the University of Minnesota have collected an extensive amount of data on walking behavior in the Twin Cities metro area. In one study based on this data, the researchers explored the effect of residential density on travel walking, leisure walking, and overall physical activity (Forsyth, Oakes, Schmitz, & Hearst, 2007). The study revealed that dense areas were

associated with large increases in travel walking (walking to a specific destination). However, there was a catch: the increase in travel walking was joined by an equal decrease in leisure walking. Ultimately, there was no increase in overall physical activity. For planners interested in decreasing car trips, the results are positive; for planners who want to decrease obesity through urban design, they're a disappointment.

Sociologists and planners once widely assumed that density increased the incidence of crime. However, Jacobs' assertion that more "eyes on the street" could enhance safety has shifted much of the conventional wisdom. Harris (2006) formulated a dual hypothesis: higher densities would be associated with a decrease in violent street crime (which should be more sensitive to surveillance), and an increase in property crime (as opportunity-based models suggest). To test this hypothesis, Harris performed a GIS analysis on blocks in Baltimore County, measuring the correlation between density and reported crimes. His results contradicted the eyes-on-the-street hypothesis, but supported the opportunity model: the rate of all crimes increased on higher-density blocks. An important caveat to these findings is that the analysis did not attempt to correct for socioeconomic variables. This omission is especially glaring in the context of Baltimore, which has significant concentrations of poverty in its older neighborhoods.

An issue somewhat related to crime is the social strength of a community. Planners in the pre-Jacobs era often assumed that dense areas were inhospitable to human life, and prevented the formation of healthy communities. Meanwhile, today's advocates of traditional urbanism argue that dense cities are the key to a more communal life. Some research suggests that both views may be wrong. A Belgian study measured levels of "social cohesion" in 50 communities in Flanders, and concluded that there were no significant differences in social cohesion between communities of varying population size and density (Hooghe & Botterman, 2012). These findings run contrary to

the old idea that small towns are havens of close-knit community, and the newer idea that dense cities are more community-oriented than other types of human settlement.

### *Short Blocks*

In the *Death and Life*, Jacobs accompanies her discussion of short blocks with a series of graphics comparing possible travel paths in different block structures. Without knowing it, Jacobs was practicing what we now call *urban network analysis*. Thanks to advances in GIS technology, researchers are now able to quantify the characteristics of street networks – including short blocks -- in ways that would have been unimaginable to Jacobs. While intersection density remains the tried-and-true metric for estimating block structure, more sophisticated measures like visual connectivity have begun to emerge. Present research on the effects of short blocks is still lacking, but a boom may be on the horizon.

Jane Jacobs believed that the porous nature of short blocks provided a more hospitable environment for businesses than isolating super blocks. A study of retail storefront distribution in Buenos Aires gives some support to her argument (Scoppa & Peponis, 2015). Although the study found that the density of commercial frontage was heavily correlated with proximity to the central business district, short blocks – regardless of their location -- tended to have a higher proportion of commercial uses.

A study from Buffalo, NY provides evidence that short blocks may also encourage pedestrian activity. Hajrasouliha and Yin (2014) collected pedestrian counts across the city over multiple years. To supplement this data, the researchers recruited subjects to mark what they considered to be the most “walkable” streets on a map of the city. The density of intersections (hence, short blocks) had a strong impact on the number of pedestrians, and the areas that were considered most walkable.

## *Aged Buildings*

It would be impossible to argue that aged buildings have been ignored by the current generation of urbanists. But all too often, aged buildings are divorced from the context of the other three generators. New Urbanism and Smart Growth, which are otherwise heavily influenced by Jacobs, are typically silent on this point. This is likely because members of these movements are often responsible for building entirely new communities, where a mixture of building ages is impossible. On the other hand, historic preservationists have made the value of aged buildings the centerpiece of a highly-influential ideology.

Due to the strength and influence of the historic preservation movement, a large body of research has emerged on the effects of historic preservation policy, including protected historic districts. In this review, I've sometimes used historic preservation policies as a proxy for "aged buildings." There are some issues with this, since Jacobs does not specify that old buildings should be legally protected, and her model always allowed for gradual new construction. However, including studies on historic preservation dramatically expands the available literature, and these studies certainly provide *some* evidence regarding the value of aged buildings.

Although Jane Jacobs valued old buildings for their ability to provide affordable spaces, historic preservation often has a different effect: increasing property values. Zahirovic-Herbert and Chatterjee (2012) analyzed changes in Baton Rouge property values, using data from home sales between 1984 to 2005. Their analysis looked for effects on homes from being in a historic district, proximity to a historic district, and proximity to a historic landmark. According to the study, homes located in a historic district earned a 6.5 percent price premium, while simply being located near a historic district created a smaller increase in home values. However, the effect of historic designation

was not distributed evenly: homes in the lowest price quartile saw the largest boost, while the effect on homes in the top 10 percent was insignificant.

While increasing property values are good for some homeowners, a common concern surrounding the preservation of historic areas is that this sort of control might accelerate gentrification. Zahirovic-Herbert and Chatterjee's findings in Baton Rouge back up this thesis, since historic preservation policies significantly increased the price of otherwise inexpensive homes. However, actual evidence of displacement is hard to find. Coulson and Leichenko (2004) studied demographic changes in Fort Worth neighborhoods between 1990 and 2000, in order to detect socioeconomic shifts caused by historic preservation districts. The neighborhoods remained demographically stable during the study period, even though home values increased. A possible objection to these findings is that Fort Worth exists in a vast and relatively unconstrained housing market. Designated historic preservation districts could have a greater displacement effect in geographically-constrained cities (e.g. San Francisco, New York) with more market pressure from upper-income home buyers and renters.

In Louisville, Gilderbloom, Hanka, and Ambrosius (2009) have documented an even wider range of benefits from historic preservation policies. Like previous studies, the Louisville study found strong evidence that property values increased in the city's historic districts. But the researchers also found that residents of these neighborhoods exhibited more environmentally-conscious behaviors, and that the existence of historic preservation tax credits created jobs in the area. While these secondary benefits are interesting, they are either highly-dependent on specific policies (the availability of tax credits), or a case of dubious correlation. It is unlikely that stronger preservation policies will create an environmentally-conscious population where none existed before.

As previously noted, studies that focus on historic preservation policies can show us some aspects of the value that older buildings might provide, but there are many things they lack. Not every neighborhood with older buildings is protected through a historic preservation ordinance -- and the idea of “preserved” neighborhoods doesn’t quite track with Jane Jacobs’ interest in dynamic urban economies. Jacobs was also primarily interested in commercial buildings, which are often excluded from studies on historic preservation.

An extensive study from the National Trust for Historic Preservation (2014) is one of the most extensive attempts to examine the value of aged buildings from an explicitly Jacobsian framework. The methodology of the NTHP study – which covers Seattle, DC, and San Francisco -- is noteworthy in a number of ways. The study divided each city into a mosaic of 200 by 200 meter squares, and quantified the characteristics of these fine-grained areas using property records for individual buildings. The researchers also developed novel measures of urban vitality, including the range of business hours, the number of sidewalk seating permits, and cellphone activity in the evening. Ultimately, these particular metrics yielded unclear results. But the study *did* find that older buildings contained a higher percentage of jobs in small businesses, and a higher number of creative sector jobs per square foot. In San Francisco and Seattle, more age-diverse neighborhoods also boasted a wider range of rents. Both of these findings echo Jacobs’ assertion that old buildings incubate new ideas. Of course, generalizability remains an issue. The cities selected for the NTHP study had booming centers, and unusual proportions of young, wealthy, and well-educated residents. Cities with different market characteristics may experience different impacts from aged buildings.

A more focused study from King (2013) examined the relationship between a mixture of building ages and social health in Chicago neighborhoods. Combining survey and census data, King measured social health in four areas: social cohesion, social control, intergenerational closure, and reciprocal exchange. Controlling for the proportion of different age groups, affluence, and



residential stability, the age diversity of housing had a significant positive impact on every measure of social health.

### *Multi-Criteria Studies*

Jane Jacobs' was insistent on the importance of the generators of diversity working in concert. So, it's fitting that we take a close look at studies that attempt to quantify the effects of multiple generators of diversity. Although studies that test all four generators are quite rare, there are many studies that test the effects of two or more generators together. And while rare, there *have* been a few attempts to explicitly quantify every element of Jacobs' theory.

John Weicher (1973) made one of the earliest attempts to put Jacobs' ideas to the test. Weicher built a regression model to test the effects of density, mixed-uses, building ages, and block size on three measures of neighborhood failure in Chicago: the delinquency rate, the death rate, and the admission rate to mental institutions. The model found no consistent relationship between the four generators and the measures of neighborhood failure (positive or negative). However, the lack of control variables, and the somewhat limiting dependent variables, make this result difficult to interpret.

A more recent attempt to test Jacobs has come from a group of researchers in South Korea (Sung, Lee, & Cheon, 2015). Their study used each of Seoul's neighborhood administrative areas (*dongs*) as units of analysis, and measured the impact of the four generators on transportation mode choice. Unlike Weicher's regression model, the Korean study controlled extensively for socioeconomic conditions. These control variables behaved as one might expect: residents who were wealthier, older, or had children tended to drive more. But urban form still had an impact on mode choice. Older buildings, along with employment and building density, had a strong positive effect on walking. Population density and mixed uses had an unclear effect. Short blocks (measured via

intersection density) had only a weak positive association with walking. Although the results of Sung, Lee, and Cheon's research were mixed, their study methods provide a fruitful model for research on other cities.

Lawrence Frank and Gary Pivo (1994) produced a groundbreaking study on the effect that mixed uses and density have on three transportation modes: single-occupancy-vehicle driving, walking, and transit. Although density was found to have a strong effect on pedestrian activity, the study discovered that certain levels of density acted as thresholds. Increases in density below a certain threshold failed to reduce driving, while increases above certain thresholds had little additional benefit. Mixed uses had a statistically significant effect on walking and transit use, but its overall effect was minor compared to density.

Cervero and Kockelman (1997) conducted a study in the San Francisco Bay area that examined the impact that “the 3Ds” – density, diversity, and design – had on neighborhood travel demand. Data for the study was derived from travel survey data collected from 50 neighborhoods in the Bay area. A regression analysis of the survey results revealed that block density, intensity (a measure of activity and development clustering), and mixed-use buildings were associated with lower vehicle miles traveled (VMT) for non-work trips. On the other hand, neighborhood design had very little impact on work trips. Ultimately, Cervero and Kockelman concluded that the transportation effects of neighborhood form were “modest to moderate at best.”

A study of travel choices in the Los Angeles metro area found similarly modest impacts from urban form. Joh et al. (2008) analyzed data from the South Bay Travel Survey, which covered the southwestern portion of the Los Angeles area. Despite Los Angeles's notoriously suburban reputation, the study area contained a strong mix of traditional, mixed-use urban neighborhoods, and more homogenous communities. The researchers found that residents of neighborhoods with mixed-uses and short blocks walked more – but they drove just as much as residents of less walkable

neighborhoods. Like Cervero and Kockelman's work, these findings seem to suggest that neighborhood-level interventions may not be enough to significantly alter travel patterns.

Lund (2003) has investigated the claims of New Urbanism (and by extension, Jane Jacobs) in Portland. Lund's study is unique, because it tries to capture both the transportation effects of traditional urban design, *and* the softer social effects that urbanists often tout. Lund gathered survey data from eight neighborhoods in the Portland area – four in the suburbs, and four in the city. These neighborhoods were then divided into four categories based on the amenities within walking distance: no park access or retail access, only park access, only retail access, and both park and retail access. Lund's analysis found that residents of neighborhoods with access to retail engaged in more “destination trips” on foot. Interestingly enough, Lund also uncovered evidence for one of Jacobs' most popular ideas: that walkable places facilitate “chance encounters” with other people. The frequency of walking trips was strongly correlated with the number of unplanned interactions reported by respondents. Residents of inner-city neighborhoods with retail access also reported that they were more likely to engage in “supportive acts of neighboring.”

Surveys are a common method for gauging the behavior of urban residents. But new data-collection techniques promise a more objective window into the impact of urban form on city life. Similar to the methods used by the NTHP, a study in Amsterdam used cell-phone use data to measure the impact of mixed-uses and density on human activity patterns (Jacobs-Crisioni, Rietveld, Koomen, & Tranos, 2014). A helpful feature of the study is that it examines the effects of specific combinations of land uses, rather than just using a simple index that assumes uses are interchangeable. The researchers found that areas that featured *shops* and *meeting places* in combination were able to sustain increased activity throughout the day. However, even in areas that were purely residential, density increased activity. (This seems like common sense: more people will mean more cell-phone usage.)

Because of the difficulty of data collection, studies often exhibit a tradeoff between scope and detail. An Atlanta-based project offers one of the most comprehensive looks at the relationship between urban form and health in a metropolitan area. Beginning in 1998, Georgia Tech researchers began the Strategies for Metropolitan Atlanta's Regional Transportation and Air Quality (SMARTRAQ) project, with the goal of studying the relationship between land use, transportation, health, and the environment in the Atlanta region. SMARTRAQ researchers assembled a comprehensive database of land use for all 13 counties in the Atlanta metro area, and conducted a travel survey with 10,878 participants. The first study based on SMARTRAQ data examined the connection between obesity and the built environment (Frank, Andresen, & Schmid, 2004). Researchers found that neighborhoods with mixed land uses were associated with a lower likelihood of being obese. However, this relationship was not constant across demographic groups. White males in particular were found to have the highest correlation between land use mix and reduced obesity. Meanwhile, connectivity and density had statistically insignificant effects on obesity in the model.

A second study from the SMARTRAQ project explored the relationship between physical activity and the built environment. This study was based on supplemental accelerometer data gathered by 357 participants. For this study, density, connectivity, and land-use mix were combined into a "walkability index." The findings were positive: with every quartile increase in walkability, neighborhood residents became 30 percent more likely to get over 30 minutes of daily physical activity.

There is perhaps no American city that represents the turn to Jacobs-inspired planning quite like Portland, Oregon. Since the late 1980s, strong metropolitan planning policies have pushed development inward, transforming Portland's core into a national destination for planners searching for "what works." But has Portland's Jacobsian form increased the well-being of its residents? Miles

and Song (2009) attempted to answer this question by measuring the correlation between resident outcomes and urban form in Portland's neighborhoods. The study's definition of "good" urban form is closely related to the four generators of diversity: neighborhoods with high connectivity (a measure that includes short blocks), high residential density, and a mixture of uses. Based on these factors, Miles and Song categorized 530 block groups (a proxy for neighborhoods) into 7 categories of form. Then, the authors measured the correlation between each neighborhood category and measures of socioeconomic deprivation and residential stability. The resulting analysis found that there was little correlation between "good" urban form and the economic and social health of a neighborhood. Or, as the authors put it, "the quality of life benefits of neo-traditional design may not be realized in high-poverty areas" (Miles & Song, 2009).

As we've already seen in the literature regarding mixed uses, there's a significant amount of disagreement over whether traditional urban form facilitates or inhibits crime. But only testing the impact of mixed uses ignores the possible impact of the other generators of diversity. Greenberg and Rohe (1984) used Atlanta as the test case for comparing two perspectives on crime: defensible space, and opportunity theory. Defensible space is a descendent of Jacobs' eyes-the-street concept, and it holds that elements of traditional neighborhood design -- including mixed uses and higher density -- can reduce crime by increasing surveillance. Opportunity theory is based on the idea that the level of crime is dependent on the supply of targets in an area, and how easily they can be accessed by potential offenders. From an opportunity theory perspective, non-residential uses and interconnected streets increase the presence of strangers, and make it easier for criminals to infiltrate an area (Greenberg & Rohe, 1984). To uncover environmental determinants of crime, the study compared neighborhoods in Atlanta that had similar demographics, but different crime rates. The results of the study supported the opportunity theory: mixed uses, and small, permeable blocks were associated with higher neighborhoods crime rates. However, the setting of the study limits its

generalizability. All the neighborhoods included were relatively suburban in form, which is typical of inner-city neighborhoods in Atlanta. Since the goal of the study was to test eyes-on-the-street, its location sets it up for failure: without urban population densities, there can't possibly be enough eyes to provide surveillance.

## Does the evidence reach a verdict?

The goal of this research review was to answer a straightforward question: are the four generators of diversity good for cities? The answer, based on current evidence: some of them are, sometimes. An anti-climactic conclusion, perhaps, but an important one. To further dissect the results, I'll revisit the categories of effect established at the beginning of the literature review.

### *Transportation*

As noted in the beginning of the literature review, transportation is probably the area where research has found the clearest impacts from the four generators. Dense, mixed-use areas with short blocks are inherently less convenient for automobile users. (Although, in this case, aged buildings are largely irrelevant). The fact that automobile trips decrease in areas that are inhospitable to automobiles is easy to predict, and research backs it up. In *The Death and Life*, Jacobs' clearly predicted that this effect existed, calling it "the attrition of automobiles by the city."

However, even this empirical bright spot has a significant shadow. In economic terms, the relationship between car use and urban form is "inelastic." Most studies show that to decrease driving by a certain percentage, use mixtures, density, and the number of blocks must be increased by much larger percentages. In areas that are almost completely dominated by automobile traffic, the level of intervention required to shift transportation patterns may be practically impossible.

The research also shows that some trips are easier to reduce than others. Non-work trips appear to be much more sensitive to differences in urban form. If you can easily walk to grab a bite to eat, or a loaf of bread, you probably will. Work trips, on the other hand, are not so easy to change. In many areas, access to the job market requires access to a car. Even if an individual lives in an island of Jacobsian walkability, the nature of the metropolitan transportation network may make taking active transportation to work impossible. This certainly doesn't mean traditional neighborhood design is a waste of time. Neighborhoods that follow Jacobs' prescriptions certainly facilitate a lifestyle that many find attractive. But those who wish to end our dependence on automobiles may need to look elsewhere for the necessary interventions.

## *Health*

The health impacts of urban form have become a hot-topic in recent years. Unfortunately, the state of the evidence is not as strong as many seem to believe. Multiple studies show that increased levels of active transportation reduce other forms of physical exercise. Once socioeconomic factors are taken into account, it's hard to find a smoking gun that proves car-dependent neighborhoods cause health problems.

The loose link between urban form and health is actually quite intuitive. After all, well-heeled suburbanites tend to find the time to get toned and fit, even if they live in a cul-de-sac McMansion. Meanwhile, inner-city residents with little access to nutritious food, and no time to exercise, aren't going to reap a windfall of benefits of their relatively more walkable neighborhoods.

This isn't to say that urban form can't have a positive impact on health; there is a modest level of evidence that suggests it can. But as in the case of transportation, the feasibility of pursuing better health through changes in urban form is questionable. For example, the SMARTRAQ research in Atlanta shows that as neighborhoods move up a quartile in walkability, residents increase

their chance of getting 30 minutes of exercise a day. Even assuming that these impacts are purely due to urban form, altering an existing neighborhood in such a way that its walkability will move up a quartile is a tall order. Facilitating more physical activity is certainly a good thing, but the limited benefits of urban form suggest that other strategies for improving public health should be pursued.

### *Social Well-Being*

The reviewed studies related to social well-being can be further divided into two more precise categories: crime and social capital. The literature on urban form and social capital is certainly interesting, but nothing close to a generalizable consensus has been reached. Given the complexity of human social dynamics, it's unlikely that any research will ever *conclusively* pin dramatic social effects on the built environment. Even, so the built environment undeniably plays a role in facilitating human interactions. The fact that environmental determinism is widely discredited doesn't mean that traditional urban environments have no positive social effects to offer.

Much more evidence has been collected on urban form and crime. But despite the widespread influence of eyes-on-the-street, the link between the generators of diversity and crime appears complicated. Crime is always a thorny topic, and attempting to find clear-cut determinants of crime is next to impossible. High-poverty areas in the inner-city are likely to be denser, and feature a traditional urban street grid. They also experience high levels of crime. Is this *because* of the urban form? Probably not. On the other hand, it's clear that better urban form won't clear away social problems in areas that have both poor form *and* high levels of crime. In hollowed-out neighborhoods where eyes-on-the-street levels of density are impossible, improving street connectivity and adding non-residential uses are likely to cause additional problems.

### *Economic Vitality*



Very few of the studies included in this review touched on economic impacts other than property value increases. This may seem surprising, given the amount of attention the relationship between urban form and economic dynamism has received in recent years. More specifically, this idea has been popularized by Richard Florida, through his highly influential work on the “creative class.” This work was not included in the review, for several key reasons. Perhaps the largest problem with Florida’s research is that it examines density on a metropolitan scale. Although Florida’s work is often linked to Jane Jacobs (sometimes explicitly), metropolitan area density is a very poor proxy for the neighborhood-level density that *The Death and Life* deals with. An often cited example is Los Angeles, which is significantly denser at the metropolitan level than New York City. The economic effect of metropolitan density is a separate issue from the fine-grained effects of walkable neighborhoods.

In short, there is a gap between what Florida’s research actually shows, and how his research is popularly portrayed and applied. An exploration of this gap could fill another paper. For the purposes of *this* paper, we can simply conclude that Florida’s ideas on urban economics are largely irrelevant to the theories presented in *The Death and Life*. As a result, we’re left with little information on whether traditional urban development can yield a stronger economic base than the suburban model.

## Part III. Beyond The Death and Life

The conclusions of the previous section may appear to cast Jacobs' ideas in a negative light. But it would be unwise to leap to any premature conclusions. The questions that researchers have asked have yielded mixed answers. But, there are still so many questions left to ask. This final section will discuss just a few of them.

### Do new ideas really need old buildings?

For all the attention historic preservation receives, planners have very little empirical data to guide their approach to “aged buildings.” The National Trust for Historic Preservation's fine-grained research is an example of a good first step. However, the study is limited by its focus on wealthy, well-educated enclaves. (The fact that the NTHP exists to advocate for preservation also calls into question the fairness of its research). Some of Jacobs' ideas on aged buildings are simply common sense, like the fact that high rents are required to cover the cost of expensive new construction. But while new construction *is* typically more costly than old buildings for tenants, there are significant questions around the dynamics created when old buildings are given explicit legal protection. In cities like San Francisco and New York, historic landmark designation has been blamed for inflating housing prices, and facilitating gentrification and displacement (Glaeser, 2010).

As mentioned earlier, different dynamics may be present in cities depending on market strength. In cities like New York, where tremendous development pressure exists, overly generous preservation protections may in fact cause catastrophic rises in property values, leading to displacement. In weaker markets, targeted preservation and rehabilitation may create unique assets that serve as anchors for renewal. But this kind of contextual nuance is often absent from conversations on preservation.

Another fundamental question is whether preservation policies have different effects on single-family homes than they do on commercial space (which was Jacobs' own focus). Existing research almost exclusively focuses on homes values, which just so happens to rely on data readily available to researchers. Preservation may increase the value of homes, but commercial and retail buildings fall prey to functional obsolescence faster than residences. Keeping old buildings usable – not to mention up to code – can incur a significant expense.

Historic preservation is all too often considered apart from other elements of planning. Often, aged buildings are simply valued because they look nice. But as fostering innovation *and* affordability become increasingly important to cities, we need a deeper understanding of the role aged buildings play in the urban economy.

## Thresholds

Most of the empirical models used to test the effects of urban form assume that environmental variables will have a linear effect on outcomes. However, this assumption is contrary to Jacobs' ideas, and to common sense. In her discourse on concentration, Jacobs stated that “we cannot understand the effects of high and low densities if we assume that the relationship between concentrations of people and production of diversity is a simple, straight mathematical affair.” It's easy to see how this same logic can apply to the other generators of diversity. Taking a suburban, low-density neighborhood, and sprinkling in a handful of non-residential uses, or replacing a few detached houses with rowhomes, is not going to have a transformative effect. Minimum thresholds of population density have long been acknowledged as a requirement for effective transit; it's likely that other elements of urban form have their own minimum thresholds for achieving certain effects.

If research on urban form is approached with thresholds in mind, researchers may be forced to face a simple fact: many potential study areas might lack *any* neighborhoods that can meet the

proper thresholds for what Jacobs thought of as true “city diversity.” In a certain city, one neighborhood may be denser than another, but comparing these neighborhoods may not yield any generalizable results if the “dense” neighborhood is still far below the threshold required to create a walkable environment. This doesn’t mean that researchers shouldn’t attempt to perform research on urban form in car-bound cities like Phoenix or Atlanta. In some cases, thresholds may be relative, or influenced by other variables (weather and cultural attitudes, for example). But more work should be put into the identification of thresholds for urban form, in a broad range of contexts. Researchers who base their models on faulty assumptions shouldn’t be surprised when their results are murky.

## Can urbanism be transplanted to the suburbs?

Jane Jacobs never meant for the lessons of *The Death and Life* to apply to suburban areas. But that hasn’t stopped planners, architects, and developers from trying. One of the hottest topics in planning -- thanks in part to the work of Georgia Tech architecture professor Ellen Dunham-Jones -- is retrofitting suburban areas into neighborhoods that are more in line with the principles of Jane Jacobs. And since the 1980s, countless New Urbanist developments have been developed on suburban green fields.

Despite Jacobs’ own misgivings, applying her observations to suburbs is not *necessarily* a bad idea. Whether in the suburbs or the city, people are people. There may very well be universal elements of urban design that appeal to human beings in a number of different contexts. The problem is, we have little basis for determining what elements of good urban form are context-specific, and which are universal. Although city centers, suburbs, and small towns have all been studied, they are rarely thought of as distinct problems in the empirical urban design literature. Planners plan for dramatically different communities, but they often work from identical assumptions.

A more intelligent approach would be to pursue research that specifically addresses the distinct classes of urban development scattered throughout the country (small towns, streetcar suburbs, post-war suburbs, edge cities, etc.). A New Urbanist development in a big city suburb is not going to have the same dynamics as a small town that acts as the center of a rural community, even if their physical characteristics (density, block-size, etc.) are almost identical. Jane Jacobs talked about the impact of urban form, but only in a specific context. A context-savvy approach to form will allow us to figure out how the problems of cities, towns, and suburbs differ – and how they don’t.

## The limitations of empirical analysis

This paper attempted to offer a window into the “science of cities” as it currently exists. Ultimately, its findings are typical of research within the social sciences: mixed and inconclusive. The previous sections outlined some broad areas where additional research could be fruitful. However, given the difficult task of producing generalizable information on a problem as complex as the city, the road ahead will continue to be rocky.

This begs a fundamental question: can the value of urban life be quantified? Even if little empirical evidence proves their superiority, it is certainly not silly to prefer cities with old buildings, short blocks, street-level retail, and teeming sidewalks. People are not automatons. An individual may be able to live a perfectly adequate life in the suburbs on paper, and yet still *prefer* traditional urban settings. In reality, empirical rankings and measurements of places are impossible. Great cities – and great neighborhoods – are more than the sum of their parts.

This puts planners in an awkward place. Data has always been the planning profession’s most reliable tool. We don’t like to argue for things that we “like” – we argue for things that are imperative for the health, safety, and well-being of our communities. If we admit that there are gaps

in our understanding of the benefits of good urban form, we risk surrendering our expert credibility. But if we don't, we're not really being honest.

There's an obvious reason why some planners may not like to shift the conversation toward preference: many people do *not* prefer living in traditional urban areas. But even if there was all the evidence in the world to back up traditional urban design, people who want three cars, a yard, and a five bathrooms would stick to their guns anyway. It is better to be honest, and admit that we are often dealing with questions of taste, not life-and-death.

Fortunately for followers of Jacobs, an increasing number of people seem to have an appetite for traditional neighborhoods. Developers and regulators alike are attempting to meet this demand. As tastes change, and these new (old) neighborhoods grow, consumers will be able to better judge what they want or don't want in their own communities. Planners are free to advocate for the types of environment they enjoy living in, but this advocacy should not become manipulative. There is a good argument to be made for traditional development, simply based on the grounds of increased choice – for both developers *and* residents. If citizens reject these arguments – well, the world will likely keep spinning.

## Final Thoughts

Jane Jacobs has made an undeniable impact on the minds of planners, but we have a long way to go before we have anything like a true science of cities at our disposal. Perhaps we never will. However, as we approach Jane Jacobs' 100th birthday, it would be a shame to diminish how remarkable her work truly was. Jacobs' conclusions remain inspiring – but planners may be better off if they imitate her *methods*. Jane Jacobs was not a professional planner; she was a passionate resident of a mid-century urban neighborhood. While professionals clung to abstract theories, she opened her eyes, and simply watched. It would be a disservice to turn Jacobs' ideas into yet another

dusty tome of planning ideas, carelessly applied to radically different situations. As Jacobs herself said, “I don’t want disciples, I want people with independent minds to read my books” (Alexiou, 2016). If the next generation of planners wants to truly follow in Jacobs’ footsteps, they will need to cultivate humility about what they know, curiosity about what they don’t, and independence from the conventions of their peers.

For planners who share Jacobs’ passion for urban form, these are undeniably exciting times. Digital technology allows us to measure and analyze the built environment like never before. Zoning codes are rapidly changing to accommodate new forms of urban development. Developers are once again interested in the urban market – and interested in experimenting with traditional design. These changes provide countless opportunities to observe what works, and what doesn’t. It would be a shame to waste this opportunity. Planners must be willing to observe our urban environment, informed by the wisdom of past planners, but unbound by it. Like Jane Jacobs, we may be surprised by what we see.

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