

FINAL CASE PAPER

INTRODUCTION

The concept of “urban sprawl” has become so popular in American planning and design literature that it has produced its own dedicated lexicon of specialized terms. Words like “asphalt nation”, “McMansions”, and “lollipop suburbs” define the conditions of low-density, automobile-dependent land use patterns that characterize the American landscape with ever greater degrees of specificity (Hayden, 2004).

There have been many reactions against urban sprawl. Amongst the most widely known in the planning and design world is a style known as “New Urbanism”, advocated by a professional non-profit organization of the same name. New Urbanist designers emphasize smaller, more human scaled environments, with increased density, mixed land uses, increased transit, and “traditional” styling elements such as front porches, arcades, and pavilions. Their stated goal is “the restoration of existing urban centers and towns within coherent metropolitan regions, the reconfiguration of sprawling suburbs into communities of real neighborhoods and diverse districts, the conservation of natural environments, and the preservation of our built legacy.” (Duany, Speck, and Plater-Zyberk, 2001).

This approach has been successful in many regards, especially commercially. Despite its success, the approach is widely unpopular amongst architecture and planning elites. New Urbanism has been criticized for producing developments that mimic the aesthetic characteristics of traditional environments yet function similar to the suburban developments that they seek to combat (Gordon

and Richardson, 1998). Arguments against New Urbanism range from accusations of social engineering (Harvey, 1997) to criticism that it does not work to reduce car dependency and produce the walkable town centers it claims to advocate (Crane, 1996). It is primarily their stylistic oeuvre, however – called “Cappuccino urbanism” by critic Michael Sorkin (2007) - that draws the most severe criticism from the modern and post-modern architectural circles.

In the United Kingdom, a parallel movement exists led by Prince Charles and his philanthropic design foundation known as, The Prince’s Foundation. More explicitly historicist than the Americans, they nonetheless embrace a wide range of methods and techniques for achieving their goals. In the face of similar critiques, the British counterparts of the New Urbanists have successfully addressed many of these criticisms through the use of evidence-based research such as space syntax, a peer-reviewed scientific method which uses data collection and computer models to measure the design factors that contribute to successful pedestrian environments. The evidence-based approach has become a component of many New Urban-esque developments in the UK, is taught in courses at many universities including courses led by the Prince’s Foundation, and has become a policy standard for many local governments seeking to measure and address these issues.

American New Urbanists have been slow to adopt such techniques, despite their potential use in combating their critics and improving the quality and value of their designs. Why is this the case? Given the close relationship between the Prince’s Foundation and the New Urbanists, why haven’t American New Urbanists adopted similar approaches to improve their design process and create research that addresses their critics? What factors might inhibit the diffusion of knowledge like space syntax in the realm of American urban planning and design? Also, what frames of analysis

might be useful in answering this question? This case paper seeks to address these questions in the context of American New Urbanism, using space syntax as a specific case study.

DISCUSSION

I propose addressing this question through the use of Everett Rogers' Innovation-Decision model of knowledge diffusion (2003), modified with Weiss and Bucuvalas's concepts of Truth Tests and Utility Tests (1980). A series of five, semi-structured interviews was conducted with individuals knowledgeable about space syntax, UK traditional urbanism and American New Urbanism. Their responses were tested against the theoretical framework outlined above.

Rogers' concept of innovation diffusion is particularly relevant to the question of space syntax adoption amongst American New Urbanists. Rogers defines innovation as "an idea that is new to a potential user." Space syntax meets this test. Diffusion is defined as a "process by which innovation is communicated through certain channels over time among the members of a social system." In this case, the channels and social system are the conferences and professional relationships that exist between UK practitioners who use space syntax and their American counterparts. This system includes annual conferences, teaching workshops, professional membership organizations, newsletters, journals, and websites.

Rogers goes on to argue that the process of adoption and diffusion involves five stages; Knowledge, Persuasion, Decision, Implementation, and Confirmation. The first phase involves the exposure of the innovation to individuals and organizations. This phase deals with several related issues, including social networks of communication, mass media exposure, and people's openness to

new ideas. Rogers then argues that exposed individuals form an opinion of the innovation through social and behavioral cues, their perception of the innovation's usefulness to their life, etc. This is called the Persuasion stage, which leads to the Decision stage where the individual chooses to adopt the innovation or not through a process of active or passive rejection. If they accept the innovation they enter into the Implementation phase, whereby they actively put the innovation to use in their life through a process of experimentation and possible modification. Finally, the individual undergoes a Confirmation stage where they seek reinforcement for their decision to adopt the innovation.

Rogers' model has been criticized for not fully taking into account the persuasive influence of organizations and group dynamics. Factors such as political preference or conflicts of interest may change the definition of usefulness by which someone evaluates a new innovation or may limit their ability or knowledge of new innovations. Further, he presents little discussion of the financial and resource limitations which may influence the adoption of new innovations.

Weiss and Bucuvalas' concept of Truth Tests and Utility Tests amongst organizational decision makers may add a useful dimension to Rogers' theory – particularly with regard to the first two points raised above. In their study of organizational decision makers in the field of mental health, they outlined five frames of reference by which decision makers evaluate and apply new knowledge. These frames were the relevance of the research topic, research quality, conformity of results with expectations, orientation to action, and challenge to existing policy.

Weiss and Bucuvalas found that all of these frames positively influenced a decision maker's perceived likelihood of using a new study. Interaction between the frames were also found to be very

important, in particular the quality of the research and how well it conformed with their prior knowledge and expectations (the so called “truth test”) and how feasible and useful it may be for immediate action and / or current policies (the so called “utility test”).

They also highlighted an important trade-off between these dimensions, whereby action oriented studies were more likely to be accepted when they didn’t challenge the status quo and challenging studies were more likely to be deemed useful when they weren’t action oriented. They write,

“When a study suggests radical redirection of policy or program, explicit direction for implementation adds relatively little to usefulness; respondents are receptive to its ideas, but they are not prepared to take immediate steps to carry out its recommendations.”

This distinction adds value to Rogers’ framework by beginning to take into account the complex relationship between novelty and the status quo. It also offers a more nuanced and perhaps realistic understanding of the pressures of cognitive dissonance that are likely to influence an individual’s acceptance of new things. Rogers acknowledges the importance of cognitive dissonance in the Persuasion and Decision stages. I believe Weiss and Bucuvalas’ thinking offers a possible explanatory mechanism for how this operates and, in the following sections, I will argue that this may be a key to understanding the diffusion of space syntax amongst American New Urbanists.

ANALYSIS

Using a combined Rogers – Weiss / Bucuvalas model, it is possible to chart the pathway of diffusion for space syntax concepts in American New Urbanism and identify where and why it may have stopped.

The first area to look is Rogers' Knowledge phase. A full account of the space syntax related exchange between UK and American urban designers would be difficult (if not impossible) to quantify and is beyond the scope of this paper. The personal experience of the author and the feedback from those interviewed suggests that although large-scale exposure has not occurred (through mass media outlets, for example), extensive exchange has occurred through Rogers' "cosmopolite communication channels" such as conferences and workshops.

Bill Hillier, the founder of space syntax theory and one of its most frequent voices, has given keynote lectures at Congress for the New Urbanism conferences, for example. Frequent collaboration between opinion leaders such as top New Urbanist figures such as Andres Duany and the Prince's Foundation would have further exposed the American audience to these concepts. One example is Hank Dittmar, the current Director of the Prince's Foundation, who was also the past director at the Congress for the New Urbanism. These facts suggest that while not widespread amongst laypeople, many New Urbanists would have had sufficient exposure to be aware of space syntax. It is therefore unlikely that the Knowledge phase of Rogers' diffusion model is responsible for the slow uptake of space syntax in America.

The second place to look in Rogers' model is the Persuasion stage. It is possible that despite their exposure, New Urbanists have not been persuaded of space syntax's value in their work. Rogers

talks about the Persuasion –Adoption Discrepancy and the need for “cues-to-action” that crystallize individual’s attitudes into behavioral change. These can take place through face-to-face or “direct communication” or through “localite” communication channels.

A lack of key events that are cues-to-action is one possible explanation for why New Urbanists have not adopted space syntax. Several of those interviewed cited multiple examples where they thought space syntax would be useful and saw opportunities to use it, however, suggesting that such cues-to-action were present. The use of email discussion lists and face to face meetings on the topic also suggests that this is not the cause either. Finally, there have been several high level instances where space syntax practitioners offered support for New Urbanist planning project such as the rebuilding of the Gulf Coast after Katrina. Clearly cues-to-action exists, suggesting that the Persuasion stage is not the key barrier to diffusion either.

Rogers’ next stage, the Decision stage, may be a more useful place to look for reasons why space syntax has not been more widely adopted. Rogers talks about the importance of being able to “try-out” an innovation before deciding to adopt it. This allows for the user to test other dimensions of the innovation’s perceived attributes, most notably its relative advantage, complexity, trialability and compatibility.

Regarding the dimension of relative advantage, all of those interviewed expressed a sense of value and advantage to using space syntax over current methods. The urbanist Paul Murrain mentioned how he “would never do a project without it” and Michael Mehaffy spoke about its usefulness in defeating criticisms raised by other forms of quantitative analysis such as traffic modeling.

Complexity and trialability, however, were reported to be significant issues by those interviewed. Although there are several free and open source space syntax application on the web, space syntax analysis and software nonetheless remains quite complex to learn and apply. This puts up a barrier to casual experimentation and demands a steep learning curve which reduces the trailability of its applications. Several interviewees emphasized this point, suggesting that they preferred hiring the relatively expensive services of the Space Syntax Limited consultancy to learning it themselves. This is likely on major reason that the innovation has not caught on in American New Urbanism.

It is in Rogers' discussion of compatibility, however, where Weiss and Bucuvalas' work becomes useful and adds a critical dimension to this analysis.¹ When evaluating the perceived usefulness and stated adoption preference of new research, Weiss and Bucuvalas found that there was a tension between innovations that offered actionable suggestions and simultaneously challenged the status quo. They found that innovative studies in mental health research were report to be more likely to be used if they were high on the scale of *either* actionable suggestions *or* challenge to the status quo. Weiss and Bucuvalas' subjects appeared to indicate a distrust of studies that were *both*. Perhaps this is they represent too much change too quickly or the adoption of too much risk.

This is an important distinction relative to this research question. Although the philosophical intentions of space syntax and American New Urbanism may be similar (creation of walkable neighborhoods, human scaled development, etc.), the actual practice of evidence-based design presents a significant challenge to the status quo of current design practice. In New

¹ In his use of the word Rogers means compatibility with existing norms and values

Urbanism (and most contemporary design culture for that matter) the “artist’s vision” is privileged over almost any other form of thinking. The ability to produce a visually exciting rendering or a compelling printed image is often considered sufficient amongst designers for its implementation. cursory analysis or no analysis at all is often acceptable, as long as the final product looks convincing.

This is very different than the evidence-based design approach advocated by space syntax. Similar to many other forms of peer-reviewed science, evidence-based design assigns varying degrees of validity to a hypothesis, depending on how that hypothesis was generated and what evidence is used to support it. Different pieces of evidence are also given different levels of validity depending on how they are collected. In an article on evidence-based design Chris Stutz (one of those interviewed for this paper) writes,

“The findings of a single primary research study are considered to be less reliable than those substantiated by a systematic review of a number of primary research studies. As for primary research, randomized experiments (where participants are randomly placed in a control group and given placebo measures) are preferable to quasi-experiments (where membership in the control group is not random). However, evidence from any kind of experiment takes precedence over observation, and observation takes precedence over personal experience, not to mention rigorous, peer-reviewed analysis and argumentation.” (Stonor and Stutz, 2005)

Anyone trained in the social or physical sciences is likely to recognize the rules of evidence outlined above. Such an approach is strange to the architecture and design world, however, where a convincing image and strong conviction is often enough to sell a project or make a grade. Lawson believes that this is due the structure of design education, which emphasizes visual display over analytical reasoning (Lawson, 1990).

The result is that many designers and planners, including the New Urbanists, are often hostile to such an approach. Many of those interviewed related stories where New Urbanists reacted defensively or felt threatened when confronted with the evidence-based design process. Coming back to Weiss and Bucuvalas, space syntax represents a clear “challenge to the status-quo” of the New Urbanists, even though the approaches are philosophically aligned.

Weiss and Bucuvalas argue that this would not be such an obstacle, however, if it were not also coupled with specific action-oriented recommendations for changes in practice. Several of those interviewed emphasized that the adoption of space syntax and other evidence-based techniques would require a change in the New Urbanists’ technical approach to urban design. One example given was in the use of 5-minute walking buffers from key facilities in New Urbanist planning. This approach is widely considered sufficient for creating walkable neighborhoods by many contemporary New Urbanist designers. Space syntax techniques reveal that simply placing a dot on a map and drawing a 400 meter buffer around it is insufficient to produce walkable conditions however – conditions which rely on a wide variety of other design and management factors. Acknowledging space syntax’s validity would render the 5 minute buffer technique obsolete, removing a quick and easy tool of analysis in common use by New Urbanists and requiring a more complex, nuanced analysis to take its place. This is a clear example of action oriented change similar to the kind outlined by Weiss and Bucuvalas.

The result is that although space syntax may meet New Urbanist truth tests it is likely to fail the utility test, simply because it requires that individuals adopt a new culture of evidence-based

decision making based on a different set of tools and technique than those they are already familiar with.

I argue that this combination of challenging new ways of thinking and requiring new techniques for action are likely to be the most significant barrier to the adoption of space syntax approaches in American New Urbanism. Even though many New Urbanists may be aware of space syntax (the Knowledge stage) and convinced of its value (the Persuasion stage), most fail to take it past the Decision phase to Implementation and Confirmation because of the cognitive challenges described by Weiss and Bucuvalas in their model. Put more pragmatically in the words one of the interviewees, “New Urbanists are too busy hustling their own game to learn about or pay for a new game. Although they might believe in it, it’s just too complicated and challenging to use for them to actually take it on board.”

CONCLUSION

This paper examined the question of why American New Urbanists have been slow to adopt evidence-based design techniques such as space syntax, even though their UK counterparts with whom they have significant contact are making use of similar approaches. It used the theoretical frameworks of Rogers and Weiss and Bucuvalas to examine how the stages of diffusion mapped onto the space syntax case study, combining elements of Weiss and Bucuvalas’ “truth tests” and “utility tests” to add further clarification to Rogers’ Decision stage.

This paper also argued that although there has been a large degree of communication and cross-fertilization between UK and American New Urbanist organizations and although approaches

like space syntax are in fundamental agreement with the philosophical approach of New Urbanism, American designers fail to adopt the use of evidence-based design because it is both too challenging to their standard way of doing business and would also require too steep a learning curve or change in practice to accommodate.

An alternative argument could be made on cultural grounds, arguing that there was something in British culture or society that made it more open to evidence-based design practices such as space syntax. Given the fact that space syntax originated in the UK, this could have some relevance. This argument is weakened however by the fact that space syntax has been widely adopted and used in many other countries outside of the UK, include most Western European countries (France, Spain, Portugal, Sweden, Denmark, Holland, and Germany), several countries in the Middle East (Saudi Arabia, Iran, Turkey and Bahrain), in South America (Brazil, Peru, Argentina, and Chile), in China and Japan, and in the relatively “Westernized” countries of South Africa and Australia. Furthermore American culture is generally considered to be more open to innovation and change than many of these countries, suggesting that the cultural argument does not explain the variation observed. Lack of mass media exposure notwithstanding, the hybrid Rogers – Weiss and Bucuvalas explanation appears to be the most likely explanation for the spread of this kind of knowledge in the public realm of American urban design and planning.

Word count: 3,206

REFERENCES

- Crane, Randall (1996), "Cars and Drivers in the New suburbs: Linking Access to Travel in Neotraditional Planning," *Journal of the American Planning Association*, 62(1), 51-65.
- Duany, Speck, and Plater-Zyberk (2001), *Suburban Nation: the Rise of Sprawl and the Decline of the American Dream*, North Point Press.
- Hayden, Dolores (2004), *A Field Guide to Sprawl*, W. W. Norton & Company.
- Harvey, David (1997), "The New Urbanism and the Communitarian Trap," *Harvard Design Magazine*, Winter/Spring, 68-9.
- Gordon and Richardson (1996), "Beyond Policentricity: Los Angeles, the Dispersed Metropolis" *Journal of the American Planning Association*, 62:3, 289-95
- Lawson, Brian (1990), *How Designers Think*, Architectural Press.
- Rogers, Everett (2003), *Diffusion of Innovations*, The Free Press.
- Sorkin, Michael (2007), "The End(s) of Urban Design", *Harvard Design Magazine*, Winter 2007, Number 25.
- Weiss and Bucuvalas (1980), "Truth Tests and Utility Tests: Decision-makers' Frames of Reference for Social Science Research", *American Sociological Review* 1980, Vol. 45 (April):302-313.
- Stonor and Stutz (2005), "Towards Evidence-Based Design", *Planning in London*, *Journal of London Planning and Development Forum*, August, 2005

APPENDIX A – LIST OF INTERVIEWEES

Michael Mehaffy – Congress for the New Urbanism / Centre for Environmental Structure / The Prince’s Foundation – Urban development specialist, theorist, and author of a wide body of literature on urban design, evidence-based planning, and New Urbanism. Expertise in space syntax, European urbanism and American New Urbanism.

Paul Murrain – Urban Designer – Former Director of Design at the Prince’s Foundation, frequent project collaborator with Space Syntax Limited – Practicing urban designer in both America and England, frequent contributor to New Urbanist projects and conferences.

Scott Bernstein – Director, Center for Neighborhood Technology – collaborator with the Prince’s Foundation and the Congress for the New Urbanism, new to space syntax but a strong advocate of evidence-based policy approaches.

Chris Stutz– Director, Space Syntax Limited – An American director of Space Syntax in London, working closely with The Prince’s Foundation and a frequent lecturer at Congress for the New Urbanism events and conferences

Seth Harry – Seth Harry Associates / Congress for the New Urbanism / The Prince’s Foundation – Urban designer and retail specialist, practiced in both UK and American contexts. Newly familiar with space syntax through project work in the UK.