Future of walkable communities: Universities as models for walkable urban design

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On my honor as a University Student, I have neither given nor received unauthorized aid on this assignment as defined by the Honor Guidelines for Thesis-Related Assignments

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Introduction

Having to drive to places in a sprawling suburban area outside of a major city seemed like the norm to me until I went to university and experienced increased walkability and proximity to residential and commercial areas. Although Charlottesville is relatively not the most walkable city, the University of Virginia provides students with academic, recreational, and residential areas within a short walking distance. This is when I first experienced the simplicity of enjoying my walks to class or the gym without the frustration of traffic jams and the hassle of limited parking in a bustling city.

These experiences are surrounded by the concepts of urban sprawl and walkable urban design, which play a role in how people interact with their environment and vice-versa. Urban design is the approach to which spaces and communities are built, examples of these are sprawl and walkable design, which differ in their separation of assigned spaces (Urban Design Group, 2019). Walkable urban design tends to create mixed-used high-density communities, meaning that there are residential, commercial, and community spaces within a walkable distance for the high concentration of people in the area while reducing private vehicle usage (NYC Department of City Planning, 2023). On the contrary, urban sprawl is the expansion of a community through low-density housing and single-family homes, with increased reliance on cars and private vehicles (Brody, 2013). Each city and town have variations of these concepts, while some universities seem to be at the center of walkable urban design due to their high-density campus designs (Taylor & Wright, 2020). Walkable urban design at universities affects how social groups interact with them, while at the same time may be restricted from accessing them.

Through the lens of Social Construction of Technology (SCOT), the University of Pennsylvania (UPenn), George Washington University (GWU), and Northeastern University

(NU) are using policies and plans, more specifically the creation of educational outlines, sustainability models, and alignments with environmental organizations to create models for walkable urban design, while displacing low-income minority communities in their respective cities. UPenn, GWU, and NU were chosen because they are top-ranked universities in regards walkability with Walk Scores of 96 out of 100 (Walk Score, 2023). These high Walk Scores consider the number of pedestrian routes to nearby amenities, walking distances, block lengths, and intersection densities in each of the respective neighborhoods that the universities are located in. Understanding the methods these universities use to create models for walkable urban design can further illustrate societal issues and can be used to learn from for future urban design applications. This is accomplished through a literature review that covers the basics of urban planning and design and delves into the impact these designs have on surrounding communities and relevant social groups. It also covers the SCOT framework, its main ideas, and relevant concepts. Then universities' plans are used as data and then analyzed for trends, specifically how these plans affect universities' urban design and relevant social groups. Then the analysis covers how infrastructure changes and plans have pushed universities to the forefront as models of walkable urban design through the creation of educational outlines, sustainability models, and alignments with environmental organizations. To conclude, the main argument of walkability and urban design at universities and at a larger city level is synthesized, as not only issues of infrastructure, but ones with social implications on relevant social groups.

Literature Review

The United States is mainly car centric, meaning cars are the main focus over pedestrians and cyclists, therefore many current US cities don’t meet the needs and well-being of the people

that interact with it. Jane Jacobs (1961), renowned urban planning writer and activist, stated that "cities have the capability of providing something for everybody, only because, and only when, they are created by everybody" (p. 238). Car-centered cities in the US provide unwelcoming and unsafe environments for pedestrians and cyclists while disconnecting people from their environment, this is the opposite of what Jacobs stated. Current urban design in many US cities does not provide for everybody, which is evident in the lack of walking and biking infrastructure. The main issue is the type of urban design implemented in these cities and how they are used and viewed by their residents. Urban sprawl, specifically low-density housing and increasing amounts of highway lanes, can only be addressed through the way people interact and view infrastructure. Universities as models for walkable urban design will serve as a new lens through which people can learn from.

There are some walkable communities in the US, which provide increasing walkability and bikeability, but at the cost of the exclusion of different groups of people. This is the opposite of what Jacobs suggests because current walkable developments aren't considering social constructions of technology, in this case urban design, and how they affect which people get to interact with new infrastructure. If these new walkable communities aren't created with diverse perspectives in mind, then they don't serve all people equally. Bereitschaft (2023) states that racial minorities are underrepresented in walkable communities in the US, due to rising housing prices caused by new urban planning that displaces racial minorities. The exclusion of racial minorities from walkable urban design serves as an example of how exclusionary the creation of walkable communities can be. This ties to what are commonly known as gentrification, the process of improving infrastructure while displacing low-income people from their homes (National Geographic, 2022). Racial minorities can't participate and interact with new walkable

communities if they have been displaced out of these communities. This issue will need to be addressed if walkable communities want to be truly inclusive. Mahmoudi et. al (2023) states that well-constructed infrastructure considers the needs and well-being of all citizens regardless of socioeconomic status and other characteristics. The purpose of urban design is the well-being of the people that interact with it and the inclusion of those who have been historically excluded from these technologies.

There are certain aspects of university urban design that work best at increasing walkability, specifically different types of walkable infrastructure, and are possible reasons why universities are used as models, such as large sidewalks, access to transportation, and mixed-use buildings in close proximity. University campus layouts have dorm buildings next to dining halls, gyms, and academic buildings, which make them good examples of walkable communities. One of the biggest indicators of walkability on university campuses are campus routes, which are composed of 90% walkable routes, including sidewalks, crosswalks, and curb cuts (King et al., 2020). When students and faculty have access to these urban design aspects, they can use them and therefore continue the cycle of usage. Currently, projects, such as Culdesac Tempe in Arizona, are testing out what aspects of walkability work best in a community outside of universities. Dougherty (2020) states that Arizona State University, also located in Tempe, is praised for its bike friendliness, but Tempe fails to imitate this in the rest of its autoscape. The Culdesac Tempe project is using Arizona State University design aspects to bring walkability and bikeability to other areas of Tempe. In a similar way to Arizona State University, it will have mixed-use buildings including 761 apartments, 16,000 square feet of retail — and zero parking spots for cars (Dougherty, 2020). These mixed-use buildings are what Parolek (2020) describes as the “missing middle housing” which describes an important aspect missing in US

infrastructure, such as duplexes and townhouses, that addresses the demand of walkability, non-single-family homes, and affordability. Another important design aspect is the access to transportation, universities usually have a public transportation system and Culdesac will implement this by including a light rail station in this community. These aspects of university urban design serve as a basis for how universities are being used as models for walkable urban design and will be discussed further in the analysis.

Universities' location influences how campus urban design is manifested and vice versa. UPenn, GWU, and NU are in Philadelphia, Washington DC, and Boston respectively, which are top-walkable major cities in the US (Rodriguez & Leinberger, 2023). On the other hand, Las Vegas College is in a sprawling suburb and non-walkable community, which can also be seen throughout its campus' limited walkable infrastructure, such as their low number of pedestrian routes (Bartshe, 2018). This means that universities' urban design can be influenced by their surrounding cities or could be developed concurrently. In a similar manner, university urban design can influence their respective surrounding cities. One way this is demonstrated is through the redefinition and redevelopment of American college campuses, such as redesigning street grids, pedestrian walkways, and green spaces. In Alliance, OH, the University of Mount Union, serves as a good example because many of their acquired rights-of-way and streets were abandoned and transformed into green spaces and pedestrian walkways (Martin, 2019). They chose to create a more walkable community through the redesigning of street grids to further connect the surrounding community and the city's downtown area to the campus core, which shows that urban design changes at universities serve to connect surrounding communities with walkable urban design. It is evident that universities and cities' urban design work together and impact each other in different ways.

Urban design has both intentional and unintentional consequences on its respective communities and relevant social groups, meaning that urban design is a conception of perception with real-life consequences. Urban sprawl design characteristics may have an impact on perceived walkability and act as a deterrent, or act as a social norm, for example, it could increase people that commute and complete errands by vehicle. If the walkable infrastructure is not there for usage, people are more likely to use vehicles and continue the cycle of not creating walkable urban design and public transportation (Bartshe, 2018). This also goes in hand with universities, increased availability of walkable design and university transportation may influence student usage increase. This is just one example of how SCOT plays a role in a relevant social group like students. Bijker's SCOT framework states that technology and society are co-constructed and work together, meaning one can't go without the other. They also stated that different relevant social groups influence how technologies are designed, used, and redeveloped (Bijker et. al, 1984). In this case, technology refers to urban design and relevant social groups refer to people that share a similar meaning and understanding of this specific technology. I will use this framework to analyze how relevant social groups create, use, and redesign university urban design as models for cities and to identify how relevant social groups have been both positively and negatively impacted by the implementation of university walkable urban design in their associated cities.

Methods

I gathered a mixture of primary and secondary sources, specifically case studies and reports on urban design related to the University of Pennsylvania, George Washington University, and Northeastern University. I focused on research and reports published within the

last 15 years in academic journals related to urban design, planning, STS, and reports published from each of the stated universities. These sources include some qualitative data, but mainly focus on quantitative data, such as trends or actions taken among these universities. I also used books on the specific topics of urban design and planning to gather background information on major themes of walkability. I examined these sources to see what social factors are considered, with a focus on the relevant social groups impacted by the usage of universities as models for walkable urban design.

A case study method was used because it provides researchers with real-life examples of theories and narrows down data to focus on specific issues or events (Heale & Twycross, 2018). In this case, using specific universities as case studies help give a holistic view of urban design, while providing specific data on walkability. It also helps understand the complexities of urban design through the narrowing down of examples, which wouldn't have been possible with an approach that tries to encompass all US universities. The usage of primary and secondary sources for this case study method is used because data has been collected from these universities and is openly available to the public.

Analysis

Educational outlines are used at universities to model walkable urban design and are documents that lay out principles to help guide the education of the next generation of urban designers and planners. UPenn uses educational outlines to prepare future city planners, designers, and architects through the goal of using their own university as a model for what future cities these future professionals may build (UPenn, 2011). Their educational outlines work

well in creating trained professionals but can lack the sense of understanding of how different social groups may be affected by the infrastructure that is built. University officials benefit from the construction and improvement of their infrastructure, as well as the local government, such as drawing in more prospective students, tourists, and residents to the local community. On the other hand, UPenn infrastructure improvements, such the 40th Street corridor and the Penn Alexander School, have raised housing prices, contributed to gentrification, and increased separation between UPenn and its surrounding community (Lawrence, 2017). This means UPenn is not safe from perpetuating gentrification in their surrounding communities, even with established educational outlines on urban design and planning. This also illustrates that UPenn may not be considering the social implications of urban design through SCOT on communities in Philadelphia or perhaps have chosen profits over people. Another example are green spaces in Philadelphia, such as parks, that have been gentrified and now are mainly privately managed and surveilled, while those in wealthier neighborhoods are publicly accessible (Pearsall & Eller, 2020). This shows that not only are walkable communities displacing low-income residents, but also decreasing their access to green spaces. This demonstrates the concept of "otherness" through the restriction of green spaces which is limited to wealthy individuals. UPenn's emphasis on increasing green spaces in their urban design educational outlines therefore amplifies the restriction of greenspaces to only certain groups and doesn't consider the implications of their designs (UPenn, 2011). These were both examples of UPenn using educational outlines to model walkable urban design in Philadelphia, but at the same time creating social implications, such as the displacement of low-income residents and the restriction of access to green spaces.

Some universities take a more direct approach with the usage of sustainability models for walkable urban design. George Washington University is taking such an approach, it is committed to using its campus as a model for sustainability and sustainable urban design: “GW is committed to developing, piloting, and demonstrating models for urban sustainability and resilience. The university provides a test bed, a safe space for learning and inquiry, and opportunities to amplify what we learn and accomplish” (GWU, 2018). GWU’s location in the nation's capital places it in a special position, GWU’s officials want to make it their responsibility to help fight climate change through sustainability on their campus. This could be because their officials want to benefit from this accomplishment and bolster their actions as the nation’s university. GWU officials also have gained capital through the acquisition of property in Foggy Bottom, one of DC’s most sought-after neighborhoods, to create student residential and academic buildings. This has both positive and negative impacts on this community because GWU is upholding its commitment to the creation of a walkable sustainable community, but also creating housing inequality in the surrounding community. Di Caro (2012) stated that “real estate developers returned to cities, especially in areas around universities (such as GWU). They exploited the demand for walkable, vibrant neighborhoods among young professionals.” He further explained the neighborhood west of GWU used to be predominantly black, prior to the introduction of DC’s first “WalkUp” neighborhood, a term to describe a walkable urban area. The displacement of low-income black families from Foggy Bottom hasn’t been discussed among the GWU administration, therefore the social implications of GWU’s sustainability and walkability models have not been fully addressed. Through SCOT, we can see that GWU’s walkable model serves different relevant social groups in opposing ways, the young professionals benefit from this model’s walkability and proximity to DC’s downtown, while the

black community in Foggy Bottom is displaced and restricted access to DC's first WalkUp neighborhood.

Other universities align with environmental organizations to use as part of their university model for walkable urban design. Universities, such as Northeastern University, are teaming up with city officials and organizations to help implement sustainability at their campuses and therefore use these campuses as models for walkable urban design: "Northeastern will work with the Boston Redevelopment Authority and the City of Boston Environment Department to develop, set, and achieve ambitious Environmental Sustainability goals as determined in the Institutional Master Plan" (Northeastern University, 2012). Northeastern University is teaming up with the city's environmental department to improve Boston's infrastructure and urban design. Universities have a say when it comes to planning the cities they are in and serve as models through their influence on said city planning. It is not only important to note the Boston Redevelopment Authority and the City of Boston Environment Department as key players in the creation of this design, but also those intentionally (and unintentionally) affected by these designs. Such is the group Reclaim Roxbury, a community organization that is combating gentrification and the rising house prices in Roxbury, Boston. Many of them claim that the increasing Northeastern student enrollment and off-campus housing needs are accelerating the displacement of this historically black community, which has a legacy of activism and was home to Malcolm X (Sasani, 2018). The creation of community organizations, such as Reclaim Roxbury, show that when urban design is not inclusive, it creates resistance and activism from communities that aren't able to participate and access new urban design. Northeastern University serves as a model for walkable urban design through their alignment with environmental organizations, while participating in the displacement of the Roxbury black community.

Some argue that universities are not being used as models for walkable urban design but walkable cities, such as those in other countries, are being used to learn from (Beatly, 2000). These two concepts aren't necessarily mutually exclusive. University urban design borrows different walkability aspects from other types of design, just like how city planning also borrows from universities. It is more of a constant back-and-forth of design ideas that are improved over time. Earlier research focused mainly on using European cities as learning models for US cities, but these can't be compared. The main reason is that the US has local government policies in place that center single-family zoned areas (Ellickson, 2021). This difference is significant when comparing US cities to European cities, therefore other alternatives must be considered, such as universities. Universities provide walkable urban design to the areas they occupy at the cost of displacing communities. When universities are considered for walkable urban design, it will also be important to consider the social impacts they will have on surrounding communities and social groups.

Conclusion

When people think of walkable urban design or communities, they tend to ponder on European cities or US cities, such as New York City or Washington DC, but never consider that there is much to learn from US university campuses about walkability and urban design. The concept of walkable urban design at universities being used as models can now be viewed through the lens of SCOT, more specifically the co-construction of urban design and its relevant social groups. Through this new understanding, university and city officials may change their understanding of university urban design and walkability and bring these concepts to the forefront of sustainability in their cities and communities, while still considering social groups

that may be excluded from participation in new infrastructure. This could also develop more advocates for issues surrounding urban sprawl in college towns and towns without universities. Urban planning scholars could build off this by using other universities as case studies, specifically those not located in big cities. Future research could look at the studies of new walkable communities in the US and how their walkability component's function compared to those of universities. With universities pushing walkable urban design to the forefront of communities, the future looks bright for the creation of new walkable communities and the redevelopment of urban sprawl-ridden areas in the US, that is if marginalized communities and gentrification are considered, and cities are built for all people.

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