The role of movability on campus outdoor furniture

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Abstract

Public spaces are platforms where people can be a part of the public realm. One of the most important aspects of public spaces is creating essential opportunities for social interactions. This functional feature of public space is identified as "sociability." University campuses are among the popular public spaces in many cities, where students, faculty, staff, and many other residents spend time in order to get to their offices, attend a meeting, or even eat a meal. In small college towns, campuses are the center of social interactions. Along with its educational function, one purpose of a successful campus is to bring people together in an environment that creates the potential for intellectual and social exchange. While the physical character and quality of campus are defined by both its buildings and open spaces, it is the open space that has the greatest potential for unifying and equalizing the shared space of the campus. Comprised of streets, walkways, greens, courtyards, plazas, and gardens, open space has the potential to knit together the diverse elements of the campus in a coherent way. Campus planning is more important than the past because the evolution of campuses is now contributing to identifying and reinforcing an institution's brand. In response to the growing need for student life and involvement, university and college leaderships are competing against one another to develop their campuses and better suit what their students want. This research focuses on campus furniture which serves as an influential campus element.

Public furniture is a rarely observed topic in the planning literature. The term furniture is usually associated with the private sphere, while the campus is a public space. Furniture on campus provides students with comfort, information, seating, light, and protection. It ensures a place is live, accessible and enriching for its community .The campus furniture creates a deeper bond between the university and the surrounding. Therefore, campus furniture, with emphasis on

movable chairs and furniture, is the central topic of inquiry in this research. This study aims at investigating various criteria and elements that direct the process of decision making in campus planning in selected case studies to better understand why some campuses use specific type(s) of furniture and some do not. The main research question of this study is:

What are the most important elements that campus planners consider in (not) choosing movable campus furniture?

Using a qualitative research approach, this research aims at finding an answer to this question. While the principal methodological framework in this research is the case study, semi-structured interviews and document analysis are primary data collection methods. Along with the interview, indeed, document analysis is a complementary method implemented to gain background information about campuses, their planning goals, strategies, and design policies and plans. Significant documents that are used in this research are campus master plans, campuses websites and campus maps. Four university campuses are reviewed and analyzed in this research: Kansas State University (KSU) in Manhattan, Kansas; the University of Kansas (KU) in Lawrence, Kansas; the University of Nebraska (UNL) at Lincoln, Nebraska; and the University of Missouri at Kansas City (UMKC).

The findings show that function, form and appearance, durability, cost, movability, furniture placement and quantity, material, climate, ADA access, and the negative perception of campus planners and policymakers are important factors in making long-term decision about campus design, furniture, and especially movable furniture.

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Dedication

Dedicated to my beloved husband and unconditional friend, Dr. Hamed Goharipour whose support, enthusiasm and tolerance enabled me to complete the work.

My special feeling of gratitude goes to my loving parents, Farzaneh and Abdolreza, who have always been there to support me, congratulate me, and show me the best path to follow. As well as my siblings, Bita, Azar and Saied who emotionally supported me in my whole life.

Chapter 1 - Introduction

One of the most important aspects of public spaces is creating essential opportunities for social interactions. "Public spaces are platforms where people can be a part of the public realm" (Zakariya, Harun, & Mansor 2014, p. 679). When people interact with others, they feel stronger bond with their society and the space. This social connection can be measured and evaluated by the amount of different social groups' presence, social nets and life in a day (Bigdeli & Bin Ngah, 2013). This functional feature of a public space is identified as "sociability." Sociable environments aim at encouraging collective interactions and unsociable environments decrease it (Hall, 1982, p. 48). The process of socialization is crucially important by establishing communication and social interaction between the users of any reachable architectural public and common spaces and the ability to participate effectively in interaction with others both in private life and in public and professional life of humans (Forgas, 2000).

University campuses are among the popular public spaces in cities, where students, faculty, staff, and many other residents spend time in order to get to their offices, attend a meeting, or even eat a meal. In small college towns, campuses are the center of social interactions. Along with its educational function, one purpose of a successful campus is to bring people together in an environment that creates potential for intellectual and social exchange. While the physical character and quality of a campus is defined by both its buildings and open spaces, it is the open space that has the greatest potential for unifying and equalizing the shared space of the campus. It can promote the sense of community derived from actively shared space and provide the enriching experiences of both planned and chance encounter. Comprised of streets, walkways, greens, courtyards, plazas, and gardens, open space has the potential to knit together the diverse elements of the campus in a coherent way. Planning campus environment, therefore, seeks to provide open

spaces that connect students to the college's paths and buildings and let them gather and pause from the bustle of life. Campus planning is more important than past because the evolution of campuses is now contributing to identifying and reinforcing of an institution's brand. In response to the growing need for student life and involvement, indeed, university and college leadership are competing against one another to develop their campuses and better suit what their students want. Since campus furniture serves as a remarkable campus element, it is expected to impact students' behavior as well.

Public furniture is a rarely observed topic in the planning literature. The term furniture is usually associated with the private sphere, while campus is a public space (Uffelen, 2010, p. 9). Furniture in campus provides students with comfort, information, seating, light, and protection. It ensures a place is live, accessible and enriching for its community. The campus furniture creates a deeper bond between the university and the surrounding. If the campus furniture is adequately integrated in the design of a public space, it creates an identity and develops a sense of place around campus. Therefore, campus furniture, with emphasis on movable chairs and furniture, is the central topic of inquiry in this research. This study aims at investigating various criteria and elements that direct the process of decision making in campus planning in selected case studies to better understand why some campuses use specific type(s) of furniture and some do not. In particular, the use of movable furniture is the central question that is conceptualized and discussed in the next chapters.

Chapter 2 - Literature Review

Outdoor furniture

Furniture can be used very effectively to create visual order, provide space definition, delineate functional areas, and provide orientation. The importance of furniture to the viability and vitality of outdoor spaces is supported by research. The observations of William H. Whyte, based on time-lapse photography and participant-observation techniques and documented in The Social life of Small Urban Spaces, for instance, have influenced decades of public space design and policy (Main & Hannah, 2010). The remarkable role of outdoor furniture design is so much that many cities around the world use their furniture to create a well-known landmark in different spots. In other words, the quality of urban spaces is indicated by their character and how well they create a sense of identity, as well as by the quality and placement of their street furniture, as can be seen in various cities: London's red telephone booths and Paris' metro entrances, for example, have become iconic and essential to these cities' identities (Sanches & Frankel, 2010). The outdoor furniture has a broad definition and different types. In some countries, it includes benches, traffic barriers, bollards, post boxes, phone boxes, streetlamps, traffic lights, traffic signs, bus stops, tram stops, taxi stands, public lavatories, fountains, watering troughs, memorials, public sculptures, and waste receptacles (see Chinadaily, 2013). In the United States, however, researchers refer to a more limited category. The outdoor furniture in this research refers to benches, tables, seats, picnic tables, and trash cans. Although outdoor furniture includes a broad range of functions and shapes, sitting elements have always been a core component for designers.

Sitting furniture

The existence of good opportunities for sitting paves the way for the numerous activities that are the prime attractions in public spaces, including eating, reading, sleeping, knitting, playing chess, sunbathing, watching people, talking, and so on. These activities are so vital to the quality of public spaces that the availability or lack of good sitting opportunities must be considered an all-important factor in evaluating the quality of the outdoor environment in an area by simple means, it is almost always a good idea to create more and better opportunity for sitting (Gehl, 2006). Campus as a daily public space for students needs the same characteristics and qualities of public streets and spaces. Once the university officials stablished the spaces that have great importance to the students, they have the opportunity to create lasting relationships between students and the institution. Campus furniture design must follow a planning process that can be learned from urban furniture planning.

Planning the outdoor furniture

Ideally, a furniture plan begins with programming and defining the type of space: street, urban plaza, waterfront, recreational area, mall, transit hub, and so on. It asks the basic questions: who will use the space, why and when will they use it, and what will they do when they are there? And, following the typical project process model, it proceeds through analysis, concept development, detailed design, implementation, and maintenance (Main & Hannah, 2010, p. 25). The outdoor furniture should be selected and set up based on an analysis of the site's current and desired patterns of use, so it can serve its purpose effectively. There are various approaches to selecting or designing outdoor furniture. To give an example, there could be a coordinated selection which gives a consistent tone to paths and walkways; or various parts of the environment could be designed to serve as artworks in themselves (Crankshaw, 2012). Generally speaking,

there are five basic criteria involved in selecting and placing items of outdoor furniture: function (i.e. seeing how necessary an item is and how it can serve its purpose), siting and layout (i.e. deciding where each item should be places), form and appearance (i.e. making sure there a continuity or at least a linkage between the design of different items), durability (given expected usage), and cost (Evyapan & Tokol, 2000). Also, furniture items designed for outdoor spaces must be constructed of safe materials and designed to prevent injury, without sharp edges or exposed fasteners (Lovejoy, 1997). Campus design, however, has its own process and importance.

The history of campus design

As an influential landscape designer of early campuses, Frederick Law Olmsted worked with the philosophy that the physical landscape features had a direct impact on shaping human behavior, and offer students an active, experiential education versus passive or theoretical learning. Thus, a well-designed campus was an integral part of the educational experience of students, one equal in importance to the students' academic subjects and connected to higher education's mission (Sanoff, 1971, p.54). In 1850, Frederick Law Olmsted introduced park-like campus design principles, especially prominent in the land-grant institutions, which embodied the new air of a more democratic education versus the previously portrayed elitism of institutions of higher education (Turner, 1984, p. 204). Old campuses in all over the United States are good examples of a successful design .Olmsted designed several campuses in America including Cornell University, Stanford University at California, Yale University, the University of California at Berkeley, and many others. His aim in designing these campuses was to improve students' overall learning experience. Campus design in the first steps did experience a deep knowledge of its user's feelings. Considering students and their mental peace is one of the integral components for

planners and designers. "In the nineteenth century, Thomas Jefferson proposed a different approach to education at the University of Virginia, called "academical village", and its design focused on reaching out to students and professors in an appropriate landscape setting" (Turner, 1984, p. 208). Nowadays, Planners and Designers must be aware of human needs. Having a beautiful landscape and well-designed streets is not enough for satisfying the new generation. Therefore, knowledge about man's technological relationship to the physical environment is more scientifically developed than knowledge dealing with behavioral responses to the physical environment (Sanoff, 1971, P.95). Consequently, people react to their environment. This reaction is a significant aspect of environmental design.

"Designers of man's environment have had little more to rely upon as a basis for their decisions than their own an individual set of values, reflecting their own cultural, educational, economic, and social class characteristics. Often designers are unrelated to the people for whom they design" (Sanoff, 1971, P.95) Without enough knowledge about users and their spatial actions, Planners and designers will not be able to provide a context for people to use the environment as the most favorable condition.

Campus planning

Accordingly, campus planning requires analysis and detailed design in order to create a multi-functional and sociable campus for students with different preferences and/or physical abilities. Outdoor furnishings create the settings for resting, sitting and eating, and social encounters with others. It is important to note that the settings are of great importance to the elderly, those with limited mobility, and adults who have small children (Deakin, Mitchell, Nijkamp, & Vreeker, 2007). In campus planning, however, although students might be at the center

of designers' attention, the faculty, staff, and ordinary residents of the city are other users of campus environment.

Campus furniture must be coherent with the patterns and designs of the hard surfaces at the site. According to the United Nations Enable (2003-2004), the items of furniture should not give the appearance of being cluttered, so that, for example, signs are attached to a single post or column rather than being distributed in several places; group amenities such as seating areas are set up where they will be used, such as at pedestrian junctions; and features like bollards are used minimally. Also, considering different groups of users, the furnishings of campus outdoor spaces should be designed with the needs of the disabled, children, and the elderly in mind.

The selection and arrangement of the campus outdoor furniture have also a significant effect on the sociability of the campus public spaces. To give an example, if benches, trash cans and picnic tables are far apart, they may have the effect of drawing people apart, whereas if they are arranged closely linked with other amenities. The type of campus furniture and its arrangement should also consider sightlines and visibility, lighting, and accessibility issues that may be faced by, the elderly and the disabled.

The selection and design of campus outdoor furniture should also consider weather effects such as wind stress, expansion and contraction, sunlight, moisture, and in some cases, ice. The best furniture designs usually incorporate strong, simple shapes, native materials, and natural finishes, generally in black, grays, and earth tones, accented with bright colors. The most popular materials used are steel and wood; other possibilities are stone, concrete, recycled plastic and various other materials. The choice of materials depends on the context and limitations of the design; for example, whether the furniture should be resistant to vandalism, whether ventilation is needed for drying it during wet weather spells, what the weather conditions may be, how frequently the

furniture is likely to be used and by whom, what the initial costs are, including mounting, the costs and ease of maintenance, and whether there is a possibility of using eco-friendly materials (Lovejoy, 1997). Simonds and Starke (2006) argue that site furniture should be made of nonflammable materials such as metal, brick, or stone, and wooden structures should be avoided in areas where there is a risk of fire. After explaining the research design, this study implements planning principles and design criteria discussed in this chapter to analyze campus master plans and develop interview questions in order to better interpret the role of outdoor furniture, particularly sitting furniture, in the process of campus planning in four selected case studies.

Successful examples of public furniture

Luxembourg Park, Paris

The Luxembourg Gardens (also known as Luxembourg Park and Jardin du Luxembourg) are a 25 hectares oasis in the heart of Paris. Spread with statues, fountains and flowers, they are the most romantic gardens in Paris. Luxembourg Park was the pioneer in using movable outdoor furniture. The metal park chairs that have become a Paris design icon were first introduced in the Jardin du Luxembourg in 1923, replacing the folding chairs that had been available for hire since the mid nineteenth century. The park used light aluminum material with colorful color palette which have been very iconic (Judith, 2015; Paris Digest, n.d.). The café chairs at Jardin du Luxembourg can be arranged and re-arranged, but their visual language remains the same and defines the park's character because it's in tune with all the other site elements (Main & Hannah, 2010).

Bryant Park, New York City

In 1991 when Andrew Manshel became the associate director of the Bryant Park, he decided to follow the solution that William H Whyte provided in his book and documentary called

"The Social Life of Small Urban Spaces" (1980). Manshel realized that the movable outdoor furniture is the only solution for changing the park vibes which was mainly dominated by drug dealers. Eventually, by inspiring of Luxembourg park movable furniture he provided movable seating options for the Bryant Park users. Over the years, the green chairs of Bryant Park would become one of the most iconic and recognizable pieces of outdoor furniture in New York City. They helped propel the turnaround of a once seedy park dominated by drug dealers and eventually reclaim the surrounding business district that has since made room for residents. Bryant Park is the most influential project in making that specific piece of furniture a public amenity in this country (Kim, 2019).

Harvard Yard

Michel Van Valkenburgh was Landscape Architect and part of a team hired to restore Harvard Yard's tree canopy at Harvard University, he realized that the Harvard Yard is a beautiful space that students enjoy spending the time there. But it needs some elements that can make the space friendlier. By inspiring of Luxembourg Park, he came up with the idea of using movable outdoor furniture. The movable chairs become an active element since 2009, each spring Harvard Yard comes to life with the arrival of "the chairs." These brightly colored Luxembourg Chairs dot Harvard Yard, encouraging students, faculty, and staff to gather, relax, and socialize (Cataltepe, 2013).

Chapter 3 - Research Design

Research goal and questions

The goal of this research is to identify the reasons why campus planners include or do not include movable furniture in their planning agenda. It helps us see how it influences the acceptance and efficiency of the campus furniture.

The main research question of this study is:

- What are the most important elements that campus planners consider in (not) choosing movable campus furniture?

Secondary questions raised from the primary question are as follows:

- Does movability influence a campus planner's choice?

- Does location influence a campus planner's choice of furniture?

- Does furniture movability affect ADA access on campus?

- Do campus planning board members' backgrounds influence their decisions on campus furniture?

To find the answer to questions above needs a qualitative research approach. This approach is a great way for describing, interpreting, contextualizing, and gaining in-depth insight into the process of decision-making in campus planning. Qualitative approach expands our understanding of the topic beyond what is available through quantitative methods and numbers and provides a context for answering why and how questions, investigating differing perceptions and values, and interpreting meanings (Gaber, 2020). The qualitative methodology derived from this approach in this research is multiple-case study. The research methods for data collection are process

evaluation through interviews and document analysis. Both the methodology and method are described below.

Analytic study

The principal methodological framework in this research is a comparative case study. This method presents the data of real-life situations and it provides better understanding of the subject into details. Gerring defines the case study as an intensive study of a single unit for the purpose of understanding a larger class of units (Gerring, 2004, p.342). Gerring's definition may be amended to consider the notion of multi-case study research associated with temporal and spatial comparisons. Thus, case study research involves the study of a single instance or small number of instances of a phenomenon in order to explore in-depth nuances of the phenomenon and the contextual influences on and explanation of the t phenomenon (Baxter, 2010, p. 81). A case study is most appropriately categorized as a research methodology rather than as a method because, according to Baxter (2010), there are important philosophical assumptions about the nature of research that support the value of case research. The primary guiding philosophical assumption is that in-depth understanding about one manifestation of a phenomena (a case or multiple cases) is valuable on its own without specific regard to how the phenomenon is manifest in cases that are not studied. It is important to note that case study researchers often study their case(s) in depth and details. Accordingly, this research seeks to explore various aspects of furniture design, with emphasis on the concept of movability, in a number of cases.

The most common form of social research is cross-sectional. Bryman (2006) defines it as a type of case study that is conducted at one point in time. Operationally, a study may be considered cross-sectional if fieldwork is conducted in one block of time regardless of how long it takes. (Baxter, 2010, p.90). Multiple case studies, compared to one case study, provide a broader basis

for exploring theoretical concepts and explanations of phenomena. When conducted at the same point in time, case studies of multiple instances of phenomenon are commonly known as comparative case study (see Mills, Durepos, & Wiebe, 2010).

Case studies

Four different campuses are reviewed and analyzed in this research:

- Kansas State University (KSU) in Manhattan, Kansas;

- The University of Kansas (KU) in Lawrence, Kansas;

- The University of Nebraska (UNL) at Lincoln, Nebraska; and

- The University of Missouri at Kansas City (UMKC).
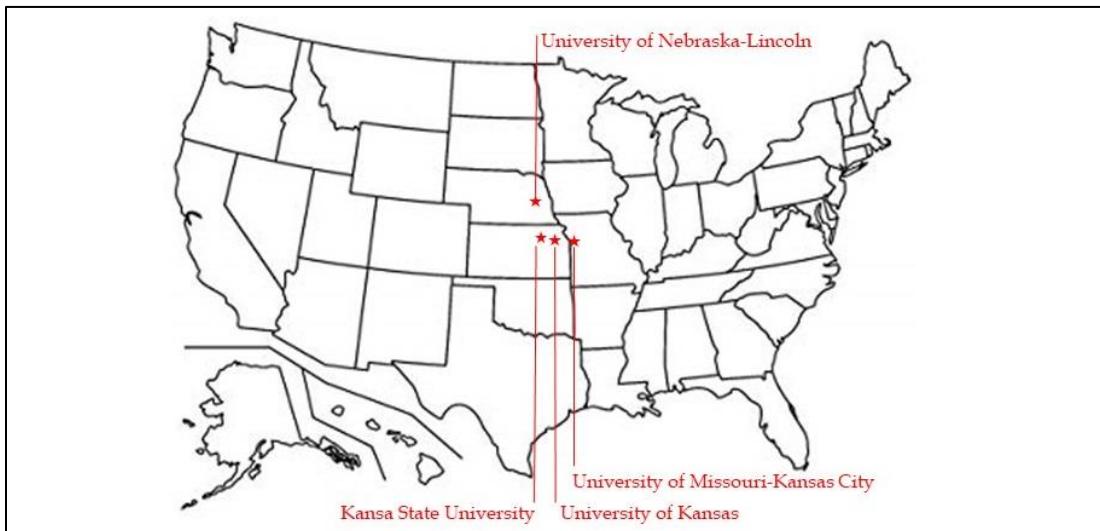
Figure 1. Case Studies
(Source of the original map: publicdomainvectors)

Three criteria helped this research to narrow its case-selection process and reach the final four case studies. First, all four campuses are located in the Midwest. Since campus planning is very much depended on the geographical context, selecting different campuses from a similar area decreases the effect of geography as the reason behind the different decisions in cases. Second, the number of students in all case study campuses is more than 20,000, so they all are considered large

universities. Third, all university campuses selected for this study have defined borders and edges. Some universities consist of different campuses/islands that makes it challenging or even impossible to focus on a specific location. This is why the universities' main campuses are studied here.

Analytic approach

Semi-structured interview and document analysis are primary data collection methods in this research.

An interview is defined as a face-to-face verbal interchanging in which one person, the interviewer, attempts to elicit information or expressions of opinion or belief from another person or persons (Maccoby and Maccoby, 1954, p. 499). Interviews provide insights into the differing opinions within a group, but they can also reveal consensus on some issues. They are excellent methods of gaining access to information about events, opinions, and experiences.

There are three major forms of interviewing: structured, unstructured, and semi-structured. Semi-structured interview has some degree of pre-determined order but maintains flexibility in the way issues are addressed by the informant (Dunn, 2010, p. 102). Interviews are particularly useful for getting the story behind a participant's experiences. One of the advantages of semi-structure interviews is that the interviewer can follow in-depth information around the topic (McNamara, 1999). The question asked in the interview are content-focused and deal with the issues or areas judged by the researcher to eb relevant to the research question (Dunn, 2010, p. 110).

The interviews were conducted with four campus planners. Each of them has been directly involved with the process of evaluating submitted proposal by different firms for preparing the Campus Master Plan. Campus planners are primarily decision makers in accepting, refusing or evaluating campus master plans. The interviews consisted of eight open ended questions and lasted

approximately 45-60 minutes. Interviews allowed the researcher to understand how perceptions and meanings of concept, elements, and ideas are different among campus planners. The goal of these interviews was to investigate complex behaviors and motivations on campus that led campus planners to take decisions of furniture selection and placement. Along with interview, document analysis is a complementary method implemented to gain background information about campuses, their planning goals, strategies and design policies and plans. Significant documents that are used in this research are campus master plans, campuses websites and campus maps.

Table 1. Research Design

Research Approach	Methodology	Method (technique)	Case Studies	Tools
Qualitative	Cross-Sectional Case Studies	Semi-Structured Interview	Kansas State University University of Kansas	Interview Questions Campus Master Plans
		Document Analysis	University of Nebraska Lincoln University of Missouri Kansas City	Universities Websites Campus Maps

Interview questions

1. In order of importance which one is the most important factor for choosing campus street furniture: Appearance- Functionality- Placement

2. Do you use movable outdoor furniture on your campus? If yes, where? What are the reasons for using moveable furniture in those locations?

3. What factors do you consider when deciding on the location of the outdoor furniture?

4. What do you consider when deciding on the quantity of outdoor furniture?

5.: What factors do you consider when deciding on the material of the outdoor furniture?

6. Do you consider the ADA access to the furniture? How?

7. Does weather influence your choice of outdoor furniture? If so, what do you consider?

8. How are the members of the campus planning board selected; and do they have background in design- and planning-related disciplines?

Chapter 4 - Research Findings

To better understand each campus operation strategies, I examined four different campuses that have adopted master plans. This chapter contains the relevant information gather through document analysis and interviews with campus planners for each case study campus.

Kansas State University

Background

Kansas State University (KSU), commonly shortened to Kansas State or K-State, is a public research university with its main campus in Manhattan, Kansas. It was opened as the state's land-grant college in 1863 and was the first public institution of higher learning in the state of Kansas. The main campus of Kansas State University in Manhattan now covers 668 acres (2.70 km2). The campus is historic, featuring more buildings built before 1910 than any other campus in Kansas (Willard, 1940).

Since 2014, the main campus has been under significant renovation to accommodate infrastructure changes. The campus is also adopting a more walking friendly atmosphere by closing off many small access roads to vehicles.

Document analysis (Kansas State University Master Plan)

The Campus Master Plan (2013) proposes a variety of improvements that would enhance physical facilities for academic and research activity on campus. While the projects are not in any sequential order of development, this comprehensive list includes near- and long-term projects. The quadrangles, courtyards, plazas and other green spaces that make up the open space network

are some of the most picturesque and charming aspects of the campus. Moreover, the balance between open space and buildings is a defining feature of the campus character. The Campus Master Plan protects this balance with careful infill and thoughtful new development. For the most part, new buildings are sited on surface parking lots to protect the existing open space network on campus. As the Campus Master Plan is implemented the open space network will be both enhanced and expanded to improve campus connectivity, as well as provide additional opportunities for gathering, contemplation, and recreation.

In terms of the history of Campus Landscape, Kansas State University, formerly Bluemont College, was founded in 1858. In 1863, the institution became a land grant college whose primary purpose was to research and determine which plants could be cultivated and grown in the Kansas Prairie landscape and to provide the information to the general public. As a primary feature of the campus landscape, shelterbelts also referred to as windbreaks, provided an essential function for the landscape of the campus by protecting human habitat, agricultural lands and livestock from winter and summer winds (Coleman, 2019).

By investigating the Kansas State University Campus Master Plan, the following information about site furnishing have been found:

- Sidewalks and Pathways: Provide adequate lighting levels for pedestrians, particularly in the historic core, campus and mid-campus. provide universally accessible routes through campus, per most current ADA Standards. Path design and size to be appropriate to level of use, providing a hierarchy of connections through the campus.
- Site Furnishings: Site furnishings should provide uniformity and are appropriate to the context/use of space. Site furnishings including tables, benches, trash receptacles, light fixtures and bicycle racks.

- Plazas: Plazas are characterized by a large expanse of hardscape that supports pedestrian traffic into building entrances, outdoor dining, and/or event spaces. It is important to maintain flexible programming opportunities to promote a sense of community for the space, incorporating a mix of fixed and moveable seating. The use of art, sculpture, temporary exhibits and/or water features is encouraged as is appropriate to site context (Kansas State University 2025 Campus Master Plan, 2013).

Interview findings

Based on interview with Diana Hutchison Director, Campus Planning and Project Management at Kansas State university we can realize that base on their campus planning criteria they place a high value on the functionality of a piece of furniture and its appearance has the second place. Also, placement would be the last factor. In terms of movability, this campus decided to not use of movable furniture base on two reasons. First, to provide access for fire department car or trash truck access may be block. Also, ADA access maybe affected by furniture movability.

Kansas state university will provide furniture through the campus based on campus traffic pattern, proximity of bus stops, proximity to any memorial locations and any place that donors and collages ask. The quantity of outdoor furniture totally depends on budget and the space availability on campus area.

In terms of outdoor furniture materials, they prefer to use anything that takes less maintenance is higher priority because there is short amount of resources to maintain all the furniture elements.

One of the most important criteria for Kansas state university campus planning department is to make sure that every facility is accessible for ADA and people who are vision impaired. In order to provide ADA access to campus outdoor furniture they provide number of tables that they provide some open areas so that someone in a wheelchair can get up to it.

University of Kansas

Background

The University of Kansas opened its doors in September 1866 on the Mount Oread ridge, overlooking the early settlement of the city of Lawrence on the Kaw River. George Kessler and Henry Wright of St. Louis designed the first campus master plan in 1904. The plan helped the university evolve from a series of "outdoor rooms," enclosed by campus buildings with focused entry points from the community, to a more linear vision (University of Kansas 2014-2024 Campus Master Plan, 2014).
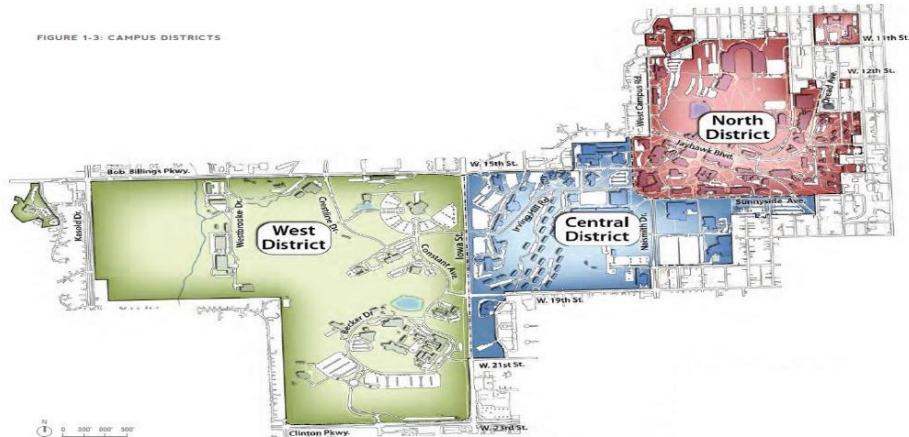
Figure 2. University of Kansas District Map
(Source: University of Kansas 2014-2024 Campus Master Plan, 2014).

The North District

As the oldest part of campus, the North District includes superb examples of landscape architectural styles of the last 150 years. These can help to inform planting and material selections for the entire campus. Jayhawk Boulevard, with its consistent building setbacks and

simple sidewalks paralleling the street, defines the primary landscape function for movement and circulation. Only the plaza on the north side of Wescoe, and the plaza in front of the Memorial Union, are heavily utilized as social spaces for students and activities. The North District has few other passive recreation spaces for more intimate and personal reflection.

The Central District

Naismith Drive is the primary open space corridor defining the Central District. As a historically important open space. It functions as an important, though congested, vehicular corridor, but underserves pedestrian circulation and activities. Apart from Naismith Drive, the character of the Central District lacks structured open space, with very few outdoor social spaces to enliven the educational experience.

The West District

The West District is currently built to accommodate vehicles more than pedestrians. Its built character is low-density suburban surrounded by naturalized fields and emergent woodlands. However, there is a sense this is an area in transition (University of Kansas 2014-2024 Campus Master Plan, 2014).

Interview findings

The interview with Director of Facilities Planning and Development Mark Reiske and campus landscape architect Alison Gerth revealed that among three important factors functionality plays a significant role in terms of choosing a piece of furniture. Placement and appearance have second and third place respectively in the process of furniture selection. The campus landscape architect mentioned that, safety and maintenance are two issues that made them to not choose movable outdoor furniture as an option for the campus. Basically, choosing furniture location in this highly depends on the projects and the needs of that project. As campus

landscape architect mentioned, sometimes consultant provides the information regarding furniture locations and sometimes campus planning department do that. The quantity of the furniture highly depends on availability of funds and the leftover money from different projects. If the campus faces some shortcoming budgets on their projects, they will use the site furnishing budget to cover up the shortcoming. In terms of materials, this campus has standards guidelines which helps them to choose the most durable materials for the outdoor furniture. Based on guidelines they use steel benches with a bronze powder coat for durability. Also, guidelines helped them to keep the historic character of Potter lake by allowing them to use concrete benches that looks like old stone benches from years ago.

University of Kansas has provided ADA access for campus furniture users by considering placement specially with the benches. They provided a concrete pad behind the main traffic flow on the sidewalks but in that they tried to keep it wide enough with the placement of the bench so they can have companion seating.

As Kansas weather has its own special characteristics such as heavy wind, which is another reason for campus planning crew to bulk furniture down. They also consider just durability with free spa and snow and salt that kicks up from all the sidewalks and roads.

University of Nebraska at Lincoln

Background

In 1869, the original University of Nebraska campus was laid out on four city blocks and comprised one building called University Hall. Currently, the university has three campuses, totaling 2,815 acres, City Campus, north of downtown Lincoln; Nebraska Innovation Campus, just northeast of City Campus on the old Fairgrounds; and East Campus, one mile east of City Campus. Attempts to impose a more civilized appearance on the campus landscape often were

turned back by the harsh conditions of the prairie. Hundreds of trees were planted, only to perish, and the first flower beds were cut down numerous times by marauding hordes of locusts. The University of Nebraska–Lincoln has two primary campus facilities in the city of Lincoln: City Campus, immediately north of the city's downtown business district, and East Campus, which is located one and a half miles east (UNL Campus Architectural and Landscape Guidelines, 2013).

Document analysis

In terms of the proposed furnishing which is related to this research, the UNL Landscape Services group composed a palette which is comprised of all Landscape Forms furnishings. It is mentioned in the document that when implementing the new palette, please note that:

- Color of metal is to be determined.

- Bench is also available as a single seat bench

- Movable chair options are stackable

- The selected bike rack allows for surface mounting to address stakeholder concerns of embedded loop construction and to allow for retrofitting of existing bike parking.

- The fixed table and chair option replace traditional picnic tables in locations where group seating should be fixed.

Picnic tables occur in locations across both campuses and provide places for small-scale gathering, outdoor studying, and impromptu collaboration. The current standard, though slightly under-scaled, provides for these uses in an effective way and is withstanding the wear and tear of use and climate. Plan suggests this component could remain the standard (not-withstanding a significant palette shift). It further recommends the introduction of more flexible collaborative seating, in the form of movable tables, chairs and umbrellas, to supplement the seating supply and promote more outdoor learning.

Also, currently, UNL uses the Landscape Forms "Gretchen" model without the umbrella hole, comprised of IPE wood with black powder coat surface mount support.

According to the plan, durable and securable movable tables and chairs must be introduced in key campus collaboration spaces (e.g. plazas, building entries). Colorful umbrellas can also reinforce identity and create interest in the landscape.
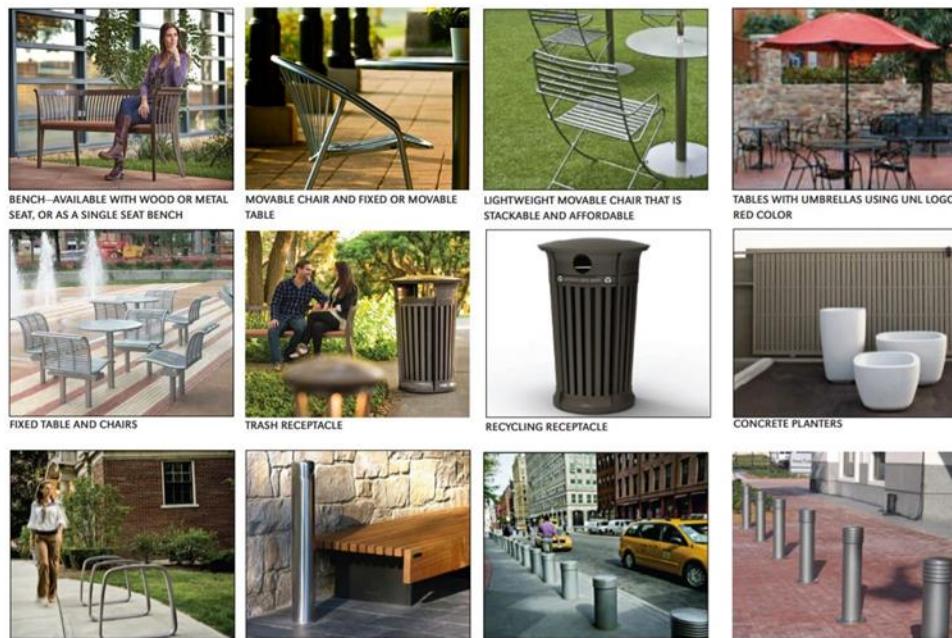
Figure 3. Proposed campus furniture
(Source: UNL Campus Architectural and Landscape Guidelines, 2013, p. 112)

Interview findings

Emily Deeker, Director, Campus Planning & Environment/Campus Landscape Architect of university of Nebraska at Lincoln, indicate that UNL campus the most important factor in choosing campus furniture is functionality. As she mentioned a bench should be functional and inviting for people to use it. Considering people's freedom of choice, how they might use it and providing the opportunity for students to use different types of seating options in the same space is important. Appearance is the second important factor. Although using university logo and

color might seem appealing, campus planning center decided to not use color and logos because red (the university color) tends to fade easily. Placement also plays a significant role in this process. Campus planning center tries to provide different options in the same place to give students different opportunities. For instance, they mix and match to see if it made sense to use a picnic table, versus a movable table and chairs, then they observe how people use it. Finally, they came up mixing different types of furniture in a place. In terms of placement, there are some locations such as plazas and libraries that people tend to use more than other places on campus, so the campus planning center provides more seating options and other accessories such as trash cans in those areas.

UNL campus uses movable furniture in different parts of the campus. The campus planner mentioned that there was a conversation about how to maintain that furniture. They finally came up with putting movable chairs and tables very close to a glass walls to be able to track the furniture and a police station inside of the building to provide a sense of security. They decided to trust and give this opportunity to users. Also, in the process of choosing the materials, they used decent heavy materials. They are heavy that people could not walk off with them and enough light that can be moved around.

In terms of choosing furniture location, they try to keep furniture out of main pathways and keep them in plaza areas or designated seating areas. Also, from design and form perspective the size of the furniture and fitting them into the place is very important. For instance, some of the picnic tables are huge, those picnic tables are eight feet across when they're four or five-person picnic table. But a smaller table with movable furniture is only 40 inches, 42 inches across**.**

The furniture quantity is another important topic in campus planning. At UNL in some cause's buildings have specific target number of people that they want to provide seating for. For example, the dental collage at UNL wanted to provide spaces for at least 60 people. Then the campus planning center started to design around that and gave them different options of both movable and fixed furniture and the costs associated with that. Sometimes the quantity is based on what fits and works in the space.

The process of choosing furniture material is part of RFP process. UNL asks potentials firms to provide their specifications for their furniture materials. One of the factors that UNL is looking for is durability. They compare their powder coat processes to see what their warranties is on those powder coat processes. But other than that, they have always a tradition of mixing metal with wood.

Recently UNL has started to order more of the picnic tables that have a slot that's left open for a wheelchair to be able to move up to it. "I think that's probably how we'll start to do a little bit more," Mrs. Deeker said. Providing ADA to a better equitable access to all furniture types is one of the criteria that UNL tries to improve in recent years.

University of Missouri at Kansas City

Background

Local leaders established the University of Kansas City (UKC) in 1929. With the generous support of philanthropist William F. Volker, the board of administrators began a fund drive. Volker purchased and donated land north of Brush Creek, eight acres south of the creek and the Dickey mansion. UMKC was founded in 1933 as a private liberal arts university. On that point of time, the university was on the suburban edge of Kansas City. UMKC is now very much an urban campus surrounded by long-established neighborhoods on all four sides. In 1963,

UMKC became a public university, it became a part of the University of Missouri system. During World War II, most students were women, but in the first peacetime year, 1946, enrollment jumped by 60 percent. Just a year later, UKC began admitting African American students. Between 1984 and today, more than a dozen additional structures have been built or remodeled (UMKC website).

Document analysis

The latest UMKC's Campus Master Plan, which is a two-page map, was published in 2014. Indeed, the University of Missouri at Kansas City does not have a written master plan report and, therefore, there is not sufficient information about furniture on its campus master plan.

Interview findings

Based on the interview with Associate Vice-Chancellor Administration Robert A. Simmons, we can realize that appearance is one of the higher criteria that they consider. Appearance includes maintainability, and they both are similarly important because of the huge issues with public universities is that they do not provide enough funds to maintain the furniture. Placement is the second important principle. Placing furniture in areas that can be shaded that are exposed to the harsh afternoon suns is necessary. UMKC campus does not use movable outdoor furniture based on the following reasons. First, vandalism is a big concern for the campus facilities planning center. Second, movable furniture in some cases might result in blocking pathways. This type of furniture might affect pedestrian and ADA circulation through the campus. In terms of furniture location, when the campus facility center is doing planning for new buildings or renovations will look at potential furniture locations. They also consider the orientation of the furniture, the East facing patios and furniture tends to work better than the

West facing. So, they tend to put more furniture as they get morning sun and it is not hot of the sun.

The furniture quantity depends on the campus' budget. According to Robert Simmons, the UMKC campus does not need a lot of outdoor furniture due to the harsh weather in Kansas.

Durability is the most significant criterion that UMKC considers when it comes to furniture materials. According to climate characteristics, there are some materials such as wood that do not long last. Compared to other potential materials, fiberglass is one of the durable materials that UMKC tends to use.

The UMKC Campus Planning Center makes sure that they have wheelchair positions which are accessible pathways. They assure each piece of furniture is accessible for a person in a wheelchair so they can still participate and be at the level of a seated person. Also, there are some fixed tables and chairs which have an open position for a wheelchair.

Chapter 5 - Discussion and Conclusion

Following the collection of data and the literature review, we came up with important factors that influence a campus planner's choice of furniture. The following results are based on interviews that have been conducted with four campus planners and have been presented in chapter four.

In chapter two (Literature Review) we came up with three important elements that planners consider while they are planning for outdoor furniture. Generally speaking, in terms of selecting and placing items of outdoor furniture, there are five basic criteria that influence planners' decision: function (i.e. seeing how necessary an item is and how it can serve its purpose), siting and layout (i.e. deciding where each item should be places), form and appearance (i.e. making sure there a continuity or at least a linkage between the design of different items), durability (given expected usage), and cost (Evyapan & Tokol, 2000). The interview findings show each campus based on its policy has its priority on three important criteria. There are different approaches to and definition of functionality, though. Also, none of the four campus planners mentioned durability and cost as affecting factors.

Table 2. Campus planners' priority of elements

Priority	KSU	KU	UMKC	UNL
First	Functionality	Functionality	Appearance	Functionality
Second	Appearance	Placement	Placement	Appearance
Third	Placement	Appearance	Functionality	Placement

All planners had its definition of functionality, appearance, and placement. KSU and KU campus planners have chosen functionality as the first criteria because they believed that

durability is part of furniture functionality. Whereas the UNL campus planner believes that movability and the ability to invite people is part of the functionality. UMKC campus planner defines functionality as the students' ability to use furniture in a way that they want. While appearance is the second important criterion for the KSU and UNL campus planners, it is the most important one for UMKC's and the last one for KU among three criteria addressed in this research. The placement of furniture has the second place for the KU and UMKC campus planners and the third place for KSU and UNL.

Movability

William Whyte in his classic 1980 study of the use of public spaces in New York City, used cameras to watch people and understand how they used the public places in the city. One of the takeaways from the film footage was that people like to sit in public places, and, far more fascinatingly, that if given the option they will almost always move chairs before they sit in them. (Berg, 2012). As can be seen in the table below, three campuses were chosen fixed campus outdoor furniture. KSU, KU and, UMKC campus planners all mentioned there are some fundamental reasons for not adopting movable furniture. First, the fire department car or trash truck pathway might be blocked by moved tables or chairs. Second, ADA pathway access can be affected by movable furniture. Lastly, vandalism. UNL has a different approach in terms of movable furniture. They decided to try movable furniture where cannot block the pathways. They gave students one opportunity to test the outcome. The outcome was surprising. They have never experienced stolen furniture. After doing some surveys about campus outdoor furniture they realize that students want more dynamic with the outdoor furniture, so the campus planning center increases the number of movable furniture throughout the campus.

Table 3. Movability of furniture

Movability	KSU	KU	UMKC	UNL
Movable & Fixed				✓
Fixed	✓	✓	✓	

Furniture placement

The selection and arrangement of the campus outdoor furniture have also a significant effect on the sociability of the campus public spaces. To give an example, if benches, trash cans, and picnic tables are far apart, they may have the effect of drawing people apart. On the other hand, if they are arranged closely linked with other amenities, they foster the sociability of the place. The type of campus furniture and its arrangement should also consider sightlines and visibility, lighting, and accessibility issues, especially for the elderly and disabled users.

Table 4. Furniture placement

Campus	KSU	KU	UMKC	UNL
Location	Buildings Preference Donors Preference Memorial locations Bus Stops	Donors Preference Hot spots	Sun/Shade (Climate)	Master Plan Recommendations Plazas

To take decision about the best location for the placement of campus furniture, each university follows several criteria and factors. KSU pays special attention to the buildings'

needs, donors' preferences, the location of memorials, and bus stops. Donors' preference and hot spots are factors that help KU campus planners to arrange the furniture. Providing shade as well as sunlight in cold seasons are of high importance for UMKC planners. UNL campus planners consider the Mater Plan recommendations, with particular attention to plazas, to decide.

Furniture quantity

The quantity of outdoor furniture depends on different factors. In the process of campus planning and design the outdoor furniture takes huge amount of budget. The price for each piece of benches or picnic tables varies between $250-$1000. Providing the furnishing budget can be a serious concern for campus planners. As can be seen in the table below, each campus has different source to provide furnishing budget. There is always the opportunity for donors in each campus to donate furniture with a name tag on it. In some cases, however, since campus furniture is not of high priority for universities, they take advantage of the budget that is considered for furniture in order to cover the costs of other projects. KU, faces this issue, as said by its campus planner.

Table 5. Furniture quality

Campus	KSU	KU	UMKC	UNL
Quantity	Budget + Availability of Space	Donors	Budget	Buildings requests + Availability of Space

Material

furniture items designed for outdoor spaces must be constructed of safe materials and designed to prevent injury, without sharp edges or exposed fasteners (Lovejoy, 1997).

The best furniture designs usually incorporate strong, simple shapes, native materials, and natural finishes, generally in black, grays, and earth tones, accented with bright colors.

The most popular materials used are steel and wood; other possibilities are stone, concrete, recycled plastic and various other materials. The choice of materials depends on the context and limitations of the design; for example, whether the furniture should be resistant to vandalism, whether ventilation is needed for drying it during wet weather spells, what the weather conditions may be, how frequently the furniture is likely to be used and by whom, what the initial costs are, including mounting, the costs and ease of maintenance, and whether there is a possibility of using eco-friendly materials (Lovejoy, 1997). Simonds and Starke (2006) argue that site furniture should be made of nonflammable materials such as metal, brick, or stone, and wooden structures should be avoided in areas where there is a risk of fire.

As can be seen in the table below each campus used a material that is easier to maintain. Almost all campus planners mentioned that they do not tend to use wood because it does perish and it is not fit for the midwestern climate. UNL campus planners had a different approach in terms of the used materials. UNL students wanted warmer material such as wood. They finally provided metal benches with wood slats in them.

Table 6. Furniture material

Campus	KSU	KU	UMKC	UNL
Material	Metal	Bronze	Fiber glass Metal	Wood Metal
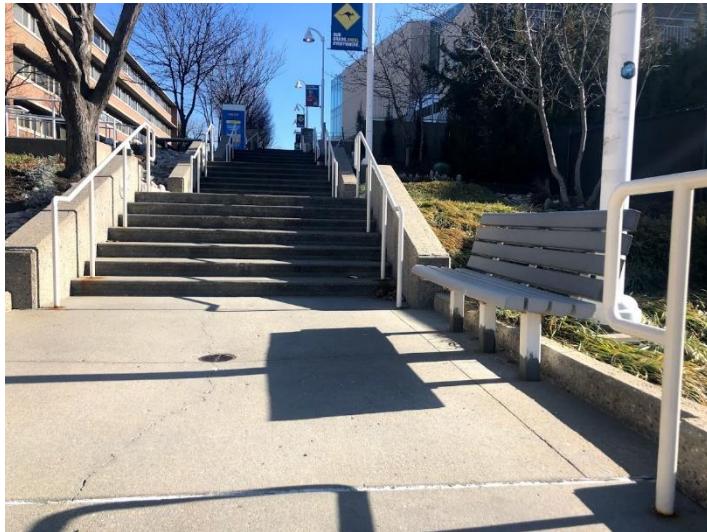
Figure 4. Fiber glass bench at UMKC
(Source: University of Kansas Campus Master Plan, 2014)

Figure 5. Combination of wood and metal at UNL
(Source: UNL Campus Architectural and Landscape Guidelines, 2013)

Figure 6. Old stone benches at UNL
(Source: UNL Campus Architectural and Landscape Guidelines, 2013)

Figure 7. Metal benches at UMKC
(Source: Author, 2019)

Climate

The selection and design of campus outdoor furniture should also consider weather effects such as wind stress, expansion and contraction, sunlight, moisture, and in some cases, ice.

Climate plays a significant role in outdoor campus planning in the Midwest United States. The temperatures vary greatly from summer to winter. Average highs in the Midwestern states are around 29°C (85°F), with lows around -9°C (15°F). Furthermore, each state has record high temperatures of more than 43°C (110°F) and lows of less than -34°C (-30°F) a variation of a whopping 77°C (140°F). In part because of its climate's extreme temperature variation and humidity, the Midwest experiences nearly every variety of severe weather. Because the states are so far from the coasts, they rarely experience hurricanes, but heat and cold waves, droughts, floods, blizzards, and tornados are all regular events. UMKC campus planner was concerned about climate effects on using outdoor facilities and the reason that students would not use the outdoor furniture.

Whereas UNL campus planner mentioned: "from November to March, it's cold in Nebraska. But what we're finding is that it's more important to get people outside, even if it is cold. We can provide seating areas to give them the opportunity to be outside. This does so much for faculty, staff, and student in terms of mental wellbeing, just to be outside and have a place to go."

ADA access

Considering different groups of users, the furniture of campus outdoor spaces should be designed with the needs of the disabled, children, and the elderly in mind. Every four campuses during designing and planning for each piece of furniture considered ADA access. All the campuses deliberately attempted to provide equitable access for all campus users. They launched

some Tables and chairs, the picnic tables with a slot that's left open for a wheelchair to be able to move up to it, in all around the campus. UNL campus planner mentioned, movable tables and chairs in each corner of campus can provide equal opportunity for all types of users. This is one of the advantages of using movable furniture. ADA access can be improved by using movable outdoor campus furniture.

Figure 8. UNL provided ADA Access Picnic Tables
(Source: Author, 2019)

Committee boards

The procedure of selecting the committee members is different in each university. Committee members usually have other responsibilities in the college and their membership in the campus planning committee is considered a secondary or tertiary appointment. The UNL uses the term "building manager" for a person who is responsible to manage a college's affairs. These managers together make the committee. In KU, deans of colleges and other individuals from Recycling Center and Transportation Center make the committee. Every college has its

own planning committee at KSU, one of which represents the college in Planning Center

meetings.

Negative perceptions

The studies and investigations on the question of why campus planners do not use

outdoor furniture as an option for campus outdoor recreation have shown that there are many

perceptions on the reasons why movable furniture is not popular among campus planners and

campus officials. One of the most important reasons is the lack of security on campus. There is

always a fear among campus planners about thefts. Another perception is related to ADA access.

Some people believe that ADA access might be blocked by a moved chair or table. The used

materials in movable furniture is one of the reasons that keep campus planners far from movable

furniture. They believe that heavy-duty materials might scratch the pavements and ground

surface. The costs associate with movable furniture can be another reason.

Recommendations

By learning from successful examples such as the University of Nebraska at Lincoln we

can learn a few points that can affect the campus outdoor life. The usage of campus outdoor

furniture has a close relationship with campus planning policies. One of the aspects of campus

planning is how the campus is successful in order to bring students, faculty, and staff out to the

open spaces and provide a context for their mental wellbeing. There are several policies that can

be effective in order to help campus planners to provide efficient campus outdoor elements. First,

students can be a member of the Campus Planning Board. Students are primary users of campus

components such as furniture, streets, plazas, etc. and they must be involved in the decision-

making process. Students can provide the campus planning board with their comments from their

perspective on each decision that the campus planning center takes. Another effective way is to have a pilot study on a small-scale. A preliminary study conducted to evaluate feasibility, duration, cost, adverse events, and improve upon the study design before the performance of full-scale outdoor movable campus furniture. Campus Planners can give a chance to campus users. Providing good quality of movable furniture can provide the opportunity for bringing students out to socialize with their peers.

Certainly, providing movable furniture opens the possibility of being stolen. However, if the area is supervised by an attendant, or if the furniture is located near another amenity or activity where the staff is present, then the possibility of vandalism and theft become much less likely. Bryant Park reports that just a few of its hundreds of movable chairs are stolen each year (Project for Public Spaces, 2008). This public park has been in Manhattan New York City. They used Radio-frequency identification (RFID) which uses electromagnetic fields to automatically identify and track tags attached to objects. An RFID tag consists of a tiny radio transponder, a radio receiver and transmitter. Using this low-cost technology may help to reduce vandalism possibility and campus planners' concerns.

Study limitations

One of the most important limitations in this research was time constraint. I selected four case studies that all are located within two hours driving distance from Kansas State University. Although these four cases provided this research with an appropriate comparative context, time limitations made it unlikely that other cases in different climates would be studied. Also, the University of Missouri at Kansas City does not have a campus master plan and this is why the analytical comparison between this campus and other cases has been conducted only based on

the interview with the UMKC's campus planner. Moreover, the Coronavirus pandemic that has taken place since March 2020 prevented me to revisit the sites and observe the conditions of furniture and their use in Spring. Finally, it is not obvious how campus planners' performance is evaluated in each university. While there are objective (according to pre-defined criteria and factors) and subjective (according to students'/users' thoughts and level of satisfaction) methodological frameworks based on which one's professional performance can be evaluated, the universities are not very clear in this regard.

Future studies

The next phase of this research is a comparative study between cases that are analyzed here with other campuses around the country which are located in different climates and geographies and, therefore, demand dissimilar principles for campus planning and design. Also, in addition to this project that analyzed the conditions of movable furniture according to campus plans as well as planners' viewpoint, another research might focus on the evaluations of campus furniture through users' perspectives, including students, staff, and ordinary residents. The interactions between campus furniture, especially those that are located at the border of campuses, with various types of furniture that are placed in other/adjacent urban spaces, including streets, plazas, etc. is another research topic that complete our understanding of campus' performance compared to other public spaces.

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