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ASSESSING USERS' PERCEPTIONS
OF CAMPUS LANDSCAPES: LEARNING FROM
THE UNIVERSITY OF TEXAS AT ARLINGTON

By

GLORIA SIMON RUMAO

Presented to the Faculty of the Graduate School of
The University of Texas at Arlington in Partial Fulfillment
of the Requirements
for the Degree of

MASTERS OF LANDSCAPE ARCHITECTURE

THE UNIVERSITY OF TEXAS AT ARLINGTON

MAY 2016

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April 20, 2016

ABSTRACT

ASSESSING USERS' PERCEPTIONS OF CAMPUS LANDSCAPES: LEARNING FROM THE UNIVERSITY OF TEXAS AT ARLINGTON

Gloria Simon Rumao, MLA

The University of Texas at Arlington, 2016

Supervising Professor: Taner R. Ozdil

The purpose of this study is to assess users' perceptions of The University of Texas at Arlington's campus landscape. This research focuses on The University of Texas at Arlington's campus landscape design element and characteristics. It also discusses the users' experiences in the campus landscapes and draws lessons to enlighten future landscape architecture practice. The University of Texas at Arlington (UT Arlington) is located in the Dallas-Fort Worth metropolitan area and is the second largest public university in the UT system. Approximately 40,000 people use the UT Arlington campus every day.

The review of literature demonstrates that campus landscapes are critical to understand and study because the relationship of people and campus environments becomes intimate when individuals feel a sense of belonging to the place they visit every day. In the historical backdrop of American campuses, most of the time the campus master plan will be more of an arrangement of building with spaces created amongst

them (Marcus & Francis, 1998). In history, design of a campus was predominantly about structures and had less focus on landscapes. Nevertheless, campus designers' perspective on campus design has changed over time. Students often choose an institution based upon their impression and perception of a campus (Griffith, 1994).

Campus landscape design plays an integral role in enrollment and retention of students and securing staff and faculty. Campus landscaping is becoming the new public face of universities (Ozdil et.al, 2013). As a result, the manner in which campus landscapes designed may entail more serious scrutiny than before.

This research uses quantitative techniques (Deming & Swaffield, 2011) to assess users' perceptions of the UT Arlington campus landscape. Data collection methods include online surveys of campus users, passive observations, and the review of archival and secondary data. The survey population included students, faculty, and staff of UT Arlington and was voluntary participation. Researcher conducted passive observations to document and illustrate the use of campus landscapes (Francis & Marcus, 1998). While survey data is analyzed reviewing descriptive statistics and frequencies, the data triangulation method is used to combine findings from surveys, passive observations and archival and secondary data (Cohen and Manion 1986).

The findings from this research point out users' opinions of various aspects of campus landscapes at UT Arlington. Results of the study reveal that design characteristics such as gathering areas, sitting areas, trees and vegetation affect users' experience on campus the most. This research focuses on the UT Arlington campus landscape and can serve to enlighten future landscape architecture practice. In future planning and designing of campuses, these recommendations can help to enhance the quality and usability of campus landscapes.

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Chapter 1

INTRODUCTION

1.1 Introduction

This thesis studies users' perceptions of campus landscapes by focusing on the UT Arlington campus landscape. This study also documents and analyzes design elements and characteristics, and then identifies the factors affecting users' perceptions and experience. This chapter reviews research questions, definitions, methodology, significance and limitations of this research. The chapter ends with a summary.

1.2 Problem Statement

The physical campus environment is the first thing people notice when they visit a university campus even before attending, and the campus setting is recalled as something memorable after departing from a particular institution (Smith,2000). The surrounding environment plays an integral role in shaping users' experiences - especially when it is a highly used public space like a college campus. As a public space, the campus landscape is an important part of users' overall experience. The design of college campuses creates an everlasting impression. Therefore, there is a greater need for properly designed campus landscapes, which creates a sense of place and community for the users'.

Campus landscaping is becoming the new public face of universities (Ozdil, et.al, 2013). The learning experience should take place throughout the campus and not just indoor (Kenney et al. 2005). Although The UT Arlington campus had been through master planning efforts multiple times, it does not have a comprehensive landscape master plan of its own; its landscape is a collection of designs completed at different

times. Assessing users' perceptions of the campus landscape at UT Arlington can help formulate a comprehensive master plan for the UT Arlington campus.

UT Arlington is one such campus located in the Dallas Fort Worth Metroplex. The University of Texas at Arlington was founded in 1895 and over the next 120 years, the school transitioned from a military school, a vocational college, a two-year academy in the Texas A & M system and finally, to what it is today: an accredited research university, with more than 34,000 in enrollment (Evelyn Barker 2015). UT Arlington is the second largest university in the UT system and is located in the North Texas region. The UT Arlington campus is about 420 acres today. The campus and its landscapes were designed in stages as new land was acquired over the decades. As a result, the UT Arlington campus landscape is an amalgamation of varying styles including both traditional and modern looks to it. To better serve to campus community, such varying qualities require assessment of the users' perceptions of the campus.

UT Arlington was established in 1895 and has been growing consistently ever since. The master plan for the UT Arlington campus was developed in 1999 and later redeveloped in 2005 in order to support the growth of the campus and student enrollment. Until date UT at Arlington, campus landscape has not been studied in its entirety and the campus master plan seems to have little emphasis on the landscape design features and characteristics (UT Master Plan, 2005). Previous research illustrates that assessing users' perceptions may help landscape architects to design campus landscape master plans to enhance users' experience (Francis & Marcus, 1998).

1.3 Purpose of the Research

The purpose of this study is to assess users' perceptions of The University of Texas at Arlington's campus landscape. This research focuses on UT Arlington campus landscape design element and characteristics. It also discusses the users' experience in

the campus landscapes and draws lessons to inform future landscape architecture practice. This study uses online surveys and passive observations at UT Arlington in order to identify the factors affecting users' perceptions and experience.

1.4 Research Questions

This research addresses the following research questions.

1. What landscape design characteristics affect the users' perceptions of campus landscapes at UT Arlington?
2. How do the users' perceptions of campus landscapes affect users' overall experience at UT Arlington?
3. What are the lessons learned from assessing users' perceptions of campus landscapes from UT Arlington?

1.5 Definition of Terms

Campus: Campus is a Latin term for "field". It is an American coinage, first used in 1775 to describe Princeton's leafy grounds. In this study, the term campus means the grounds of a school (Boughman, 1992).

Campus Landscape: According to Dober, campus landscape is "the green environment that situates, serves, and symbolizes higher education" (Dober, 1992 p.xv).

Campus Quad: Huge grassy central open space used for gathering and social interaction on campus. The main idea started with Thomas Jefferson's design for the University of Virginia with an expanse of lawn in center with the housing and academic buildings around three sides.

Grand Axis: Frederick Law Olmsted has established the central axis and iconic approach in campus planning, where a central axis provides long views through the landscape and its structures (Madgic, 2015).

Rotunda: It referred to a library structure located on lawn at the University of Virginia designed by Thomas Jefferson in 1826. He dedicated that library as a “Temple of Knowledge” (Giordano, 2012).

Naturalistic Campus Plan – Fredrick Law Olmsted imagined a naturalistic plan of buildings tucked into the surrounding foothills, with a meandering road surrounded by forests (Kelly, 2016).

Environment: The surroundings, conditions that affect an organism (Davis, 1989).

Experience: Thiel states the “combination of continuous, concurrent, interrelated, and parallel sequences of actions, feelings, and thoughts whose key aspect is the individual’s sense of participation in an immediate and present ongoing dynamic process” (Thiel, 1997 p.117).

Perception: “The objective of perception is to present our brain with a coherent and meaningful picture of the outside world and to give each object its place in an organized whole” (Coeterier, 1996, p.28).

Triangulation: A process that includes utilizing various information sources as a part of an examination to produce understanding (Patton, 2002; Denzin, 1978).

Users: For this study, users imply a group of people who have knowledge of the campus, have visited it, and live or work on the UT Arlington campus.

1.6 Research Methods

This research used quantitative techniques to assess users’ perceptions of the campus landscape at UT Arlington. Data collection methods include: 1) online surveys, (Ozdil, et.al, 2015), 2) passive on-site observations (Francis, 2002) and 3) a systematic review and summary of archival and secondary data as well as literature relevant to the design of campus landscapes. Historic documents about the UT Arlington campus are acquired from the special collection at the UT Arlington Central Library. The survey

method adopted for this research involves users' completing the survey questions online. The survey was distributed to those users who have knowledge of the campus, have visited it, and live or work on the UT Arlington campus. The participants answered questions based on their experiences and perceptions. The survey includes both open and close-ended questions to gain greater insight from the participants. Passive observation at the UT Arlington campus by the researcher is documented in this thesis in form of qualitative descriptions and site photographs. After the data is collected, a data triangulation method (Cohen and Manion1986) was used to analyze the findings to assess and illustrate the users' perceptions of campus landscapes at UT Arlington.

1.7 Significance and Limitations

This research has several implications on the campus master planning. Following are the significance and limitations of this research:

- This study provides an in-depth understanding of the users' perceptions of campus landscapes at UT Arlington.
- This study reinforces the importance of campus landscape design in the campus planning process to better serve its users.
- This research provides feedback from the users' "points of view" of landscape architects and other design professionals. These views can influence their future design projects in developing more environmentally effective and user-friendly campuses.

Limitations of this research:

- The primary focus of this research is limited to the users' perceptions and experiences of the UT Arlington campus landscape. The user's perceptions may carry some inherent biases that cannot be accounted by the researcher.

- The UT Arlington campus was the only campus studied for this research; therefore, the research cannot be generalized to all the university campuses of the United States.
- The respondents in this research were recruited in an online environment giving very little control over the understanding of the respondents' profile. Although this issue is minimized with a series of user profile questions so the sampling should not be considered randomized in this research.

1.8 Summary

The primary objective of this study is to assess the users' perceptions of campus landscapes at UT Arlington using primarily quantitative methods and techniques. Although the overall thesis concentrates on campus landscapes across the US, the University of Texas at Arlington is chosen for an in-depth study of users' perceptions because of its growing size, its location as well as the limited emphasis on the overall campus master plan. In addition, the researcher studies in the same school, which means she has a deeper and first person understanding of this campus.

This research aims to assess design elements and characteristics of the UT Arlington campus landscape, which affect users' perceptions and experiences. Users at UT Arlington (students, staff, faculty and visitors) were surveyed for the purpose of this research. Data triangulation is used to analyze the data obtained from the research methods.

Following the introduction, this thesis presents a literature review in the second chapter, research methods in the third chapter, and analysis and findings in the fourth chapter. The fourth chapter also documents the results of the survey data and onsite observations. Finally, the conclusion discusses the researcher's findings and provides suggestions for future research.

Chapter 2

Literature Review

2.1 Introduction

This chapter provides a review of literature relevant to design characteristics and features as well as the users' perceptions of campus landscapes. This chapter begins with the history of college planning and designing - mainly focusing on American college campuses, and how they evolved over time and how campus landscapes gained more recognition. Furthermore, it concentrates on design characteristics and features found in relevant literature. In addition, this chapter also introduces the location, history and contemporary attributes of UT Arlington and its campus. This chapter concludes with a summary.

2.2 History of American Campus Design

There are over four thousand university campuses in the United States today. The United States continues to be impacted by the patterns of European campuses, including architectural forms and spatial organization (Chapman 2006). The origins of colleges in the United States can be traced from the start of the seventeenth century (Turner 1987). In the beginning, many campus designs followed the British tradition consisting of three components: classrooms, resident halls, and recreational facilities (Turner 1984).

Harvard College and the College of William and Mary were built in 1636 and 1699, respectively, and were considered the first colleges in the United States. The design of these campuses initiated the tradition of a quadrangle, which is an inward-looking courtyard with a single building on each of three sides around an open space. The word "campus" was first associated with college grounds to describe Princeton University in the 1770s (Eckert, 2012; Turner, 1984) and now refers to the overall

physical quality of higher education institutions (Bowman, 2011). Figure 2-1 shows the Princeton University campus and the precursor to the University's famous quadrangle, which is apparent in the left of the center of the picture. In 1813, an architect, Joseph Ramee, planned Union College in New York (Dober 1996). Paul V. Turner in his book *Joseph Ramée* states, "In American architecture, Ramée's Union College plan is important for introducing a new type of planning, involving many buildings related in complex ways to each other and to the surrounding landscape. It is also a milestone in the history of the American college campus. The most ambitious and comprehensive plan for a campus up to that time, the Union design became a model for collegiate planning" (Turner, 1996, p: 62)

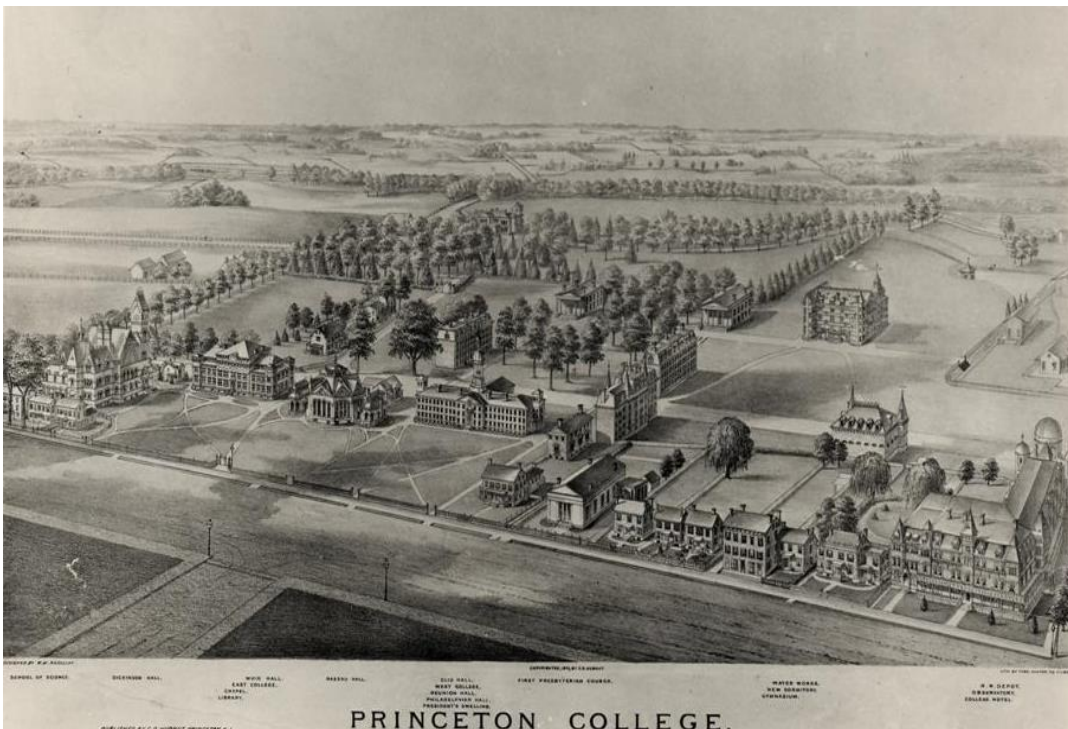


Figure 2-1 Princeton campus (Historical Art Collection, 1875)

In 1850, Fredrick 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, 1987). Olmsted designed a number of 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 (Berry, 2009). With the increase in the U.S. population in the nineteenth and early twentieth centuries, university campuses began to evolve and expand. During this period, the construction of new buildings and facilities was based on realigning the spaces with existing topography (Chapman 2006).

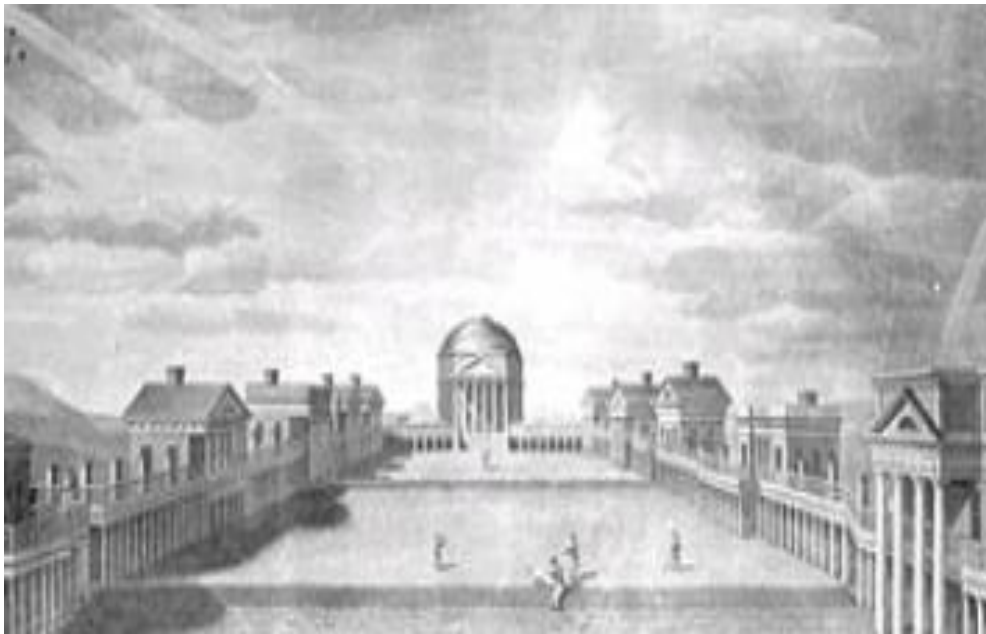


Figure 2-2 the University of Virginia (University of Virginia Library, 1826)

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, 1987). Figure 2-2 shows the rotunda as a focal point and other academic buildings on both sides with open green space in the center. Thomas Jefferson’s design principles

have played a major role in shaping the American campus landscape and his ideas continue to be emulated in the planning of modern university campuses (Chapman 2006). From the seventeenth century until today, American campuses have evolved in both campus planning and landscape designing.

By 1930, designers recognized the importance of campus planning. However, they were more focused on technical planning (Dober, 1964). A good number of the lawns, open courtyards and quads are due to another trend called the Beaux Arts movement of the 1900's with its emphasis on city planning (Griffith, 1994). As we look at the modern era, a fresh approach towards campus planning was established to accommodate the impact of automobiles, computers and digital communications (Dober, 1992). Low maintenance planting, use of native plants and low water use are new modern campus planning principles (Chapman, 1994).

2.3 Research Related to Campus Landscape Design

There have been few studies associated with campus landscape design in recent years. One of the strong overviews on campus development is Paul V. Turner's *Campus – An American Planning Tradition Planning and Campus Design* (1984). Paul V. Turner talks about how campus design has evolved since historical times to the present. Another critical source as it pertains in relevance to urban campuses is Jan Gehl's book, *Life Between Buildings* (1987), in this book he discusses that the success of an urban space depends upon people and how they use the space. Furthermore, he talks about a number of factors-which can influence people in an urban environment. Some examples of these are the campus-building height, accessibility, visibility, the location and number of entrances, crowd density, and modes of transportation in and around the space (Gehl 1987). Thomas Gaines (1991) in *Campus as a Work of Art* talks about a campus as a

form of art. In addition, Janice C. Griffith (1994) provides recommendations for designing a campus landscape where people feel comfortable.

Clare Cooper Marcus and Carolyn Francis are the first individuals to focus on the social and psychological factors in campus landscape space design in the book *People Places* (1997). It provides a large number of recommendations for designing a campus plan and landscapes. Using different colleges and universities as a study model, Marcus and Francis outlined successful and unsuccessful features. According to Marcus and Francis, outdoor learning areas are as important as classrooms. If designed appropriately, places for outdoor reading and studying can be actively used in appropriate seasons (Marcus & Francis, 1997).

In *Campus Landscape: Functions, Forms, Features* (2000), Richard P. Dober provides a brief overview of campus design principles and several historic campus case studies. In this book, Dober talks about campus landscape and states that, " Campus landscape is not an abstraction but a reflection of dimensioned reality, of which site size, configuration, and situation and the character of the environment are formative determinants". Dober summarizes his extensive research on campus landscape and his design experience with the creation of design criteria for campus design. In his book, Dober mostly focuses on the aesthetic quality of a campus landscape. He states, "Buildings and grounds are integrated into a green precinct that is pleasant to see, well defined physically and with a specific sense of place, and productive in encouraging serendipitous and synergistic interaction among those sharing the site" (Dober, 2000, p: xxiii).

These findings in Dober's research provide solid ground for future campus landscape design. In figure 2.3, the campus landscape design determinants and the campus landscape design taxonomy outlined by Dober are listed (Dober, 2000).

Additionally, in 2000 C. Carney Strange & James H. Banning - published a book , *'Educating by Design'* in which they provide a comprehensive model for creating student-friendly campus environments. In 2003, a book, *'The American College Town'* by Blake Gumprecht, was published which examines some of the characteristics that make the college campus in America distinctive (Gumprecht, 2003). Daniel J. Amsden, in 2004-05 states in his article how behavioral research can be an effective tool to use during the redesign process of university plazas (Amsden, 2004-05). This research illustrates how people react to various design characteristics of the existing plaza and how this affects the way-they use the space. In 2012, Erica Eckert did research involving student perceptions of the outdoor campus environment (Eckert, 2012).

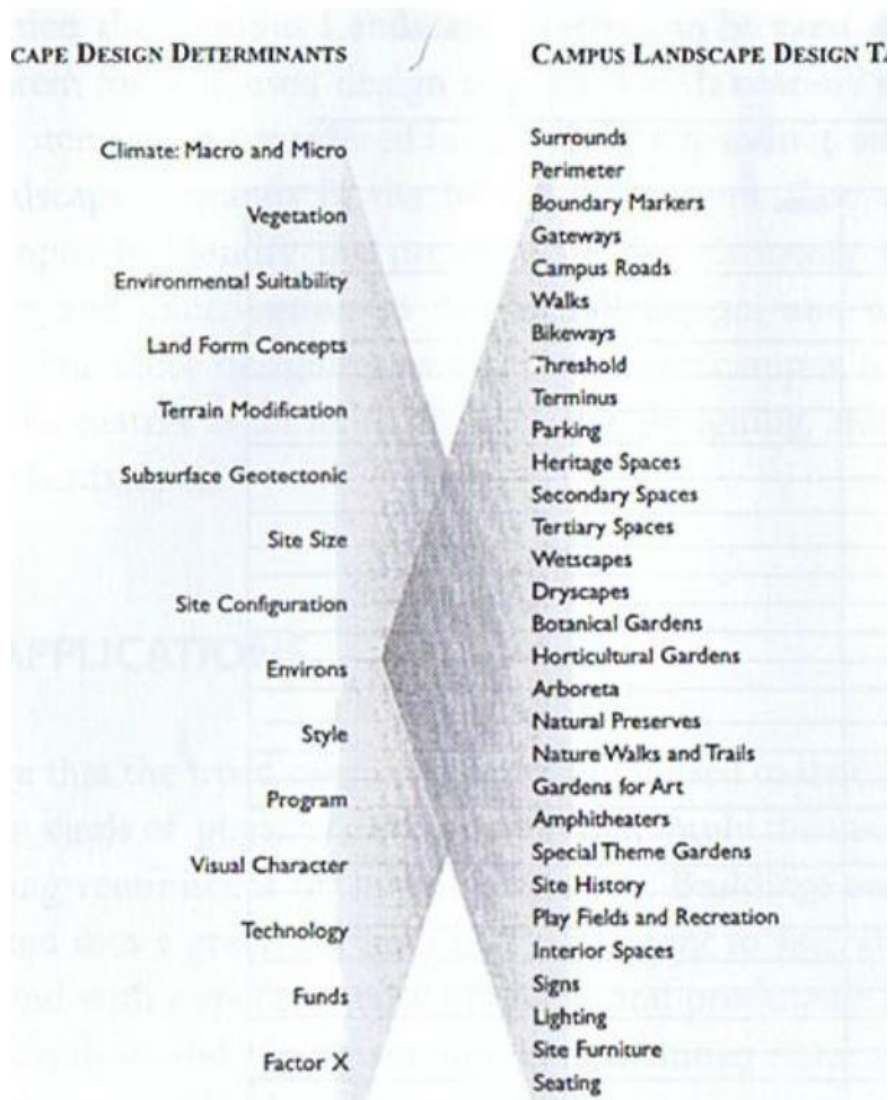


Figure 2-3 Design determinants and design taxonomy. (Dober 2000, xxi).

2.3.1 Importance of Campus Landscapes

Campus landscape can be a green environment, which locates serves and represents higher-level education (Dober, 2000). Early campus planners were architects by profession and focused their “planning” on the design and placement of new buildings, with limited attention to the surrounding grounds (Turner 1984). Campus

landscape refers to the network of exterior and outdoor spaces within a college campus that serve three functions: to organize and connect buildings, to serve and benefit students, faculty, and visitors in various capacities. In addition, to function as a symbol for higher education (Berry, 2012).

The success of a university in attracting and retaining students may be influenced in some measure by an aesthetically pleasing campus landscape with features and spaces that meet student's needs. When one visits a campus for the first time, the first impression of the campus is very important. For example, a survey of entering freshman students was asked why they chose their particular institutions. The response was the campus' physical appearance was a major factor in their decision to enroll (Boyer, 1987, Ozdil et.al, 2013).

In many campuses, users do not use the campus landscapes beyond classrooms and workplaces because the spaces are not deliberately designed for outdoor use and activities. Much of these spaces in some instances may not be designed as user-friendly spaces to accommodate user interests and needs. A well-designed campus landscape, which has a number of activities for users, is likely to attract people. It also contributes in attracting and sustaining the students, faculty and staff for outdoor use. The campus landscape connects the whole campus together into a fabric of landscape and buildings and gives a unique quality to campuses. The users' perception of the campus landscape space is closely tied to human activities as well (Manning and Coleman-Boatwright 1991). Research also indicates that - in a setting such as a university campus with a wide range of users from young freshmen to faculty and staff and active retirees, landscape spaces need to span from active/urban to passive/natural and large open lawns or hillsides to secluded spaces (Abu-Ghazze 1999).

2.3.2 Design Elements of Campus Landscapes

Campus landscape elements and character create a sense of place and a sense of belonging for users. Some elements in the campus's landscape entice students to consider this place home for the next couple of years. Whether it is the special fountain, a distinctive building, or students interacting in a park- like setting somewhere on campus, it evokes a sense of belonging (Yahres & Knight, 1995).

Design characteristics and features that pertain relevance to the campus landscape are outlined above. All this research is summed up in a design literature review matrix in Table 2.1.1. The most repetitive design elements were chosen to study in detail using survey questions. A design matrix was created based on a considerable amount of research on landscape architecture and urban design literature. The design matrix lists a number of campus design elements, which are most common throughout the literature. The first table shows design elements from the literature from 1800 to 1995 and the second table shows design elements from newer literature 1997 to 2012. The repeated design elements are listed in Table 2.1.2. According to the number of appearances in the matrix, twenty items were chosen to be studied for research.

Table 2.1.1 Design literature review matrix

Thomas Jefferson 1800	Frederick Law Olmsted 1895	Paul Turner 1984	Jan Gehl 1987	Gaines 1991	Griffith 1994
Pedestrian circulation	Pastoral and picturesque styles	Extensive landscaping	Height of buildings around the space	Statues and artwork	Landscaping
Academic village	Genius of the Place	Tree lined streets and walkways	Accessibility	Landscaping	Axial plan
Outdoor learning	Park-like character	Green and naturalistic	Visibility	Benches	Sense of place
Environmental quality	A place apart from the city	Overall pattern	Designed entrances	Walkways	Effective campus layout
Connectivity	Blending with the character of the neighborhood	Topo-graphical features	Size and shape	Fountains	Open spaces
Context	Flexibility for future expansion	The individual identity of the American style of college	Accessibility and ADA	Gazebos	Walkways
The great lawn	Naturalistic plan	Open space	Sustainability	Gathering places	Shaded lawn
Balance between architecture and nature	Response to climate	Axis which opens onto a view or a community	Organic forms in design	Sense of place	Courtyards
Library as a main feature of campus	Great axis		Natural landscapes	Overall appeal	Circulation
	Compact		Human scale	Visual focus	Focal point

Marcus and Francis 1997	Strange and Banning 2000	Gumprecht 2003	Amsden 2004-2005	Richard Dober 2000-2011	Eckert, E. 2012
Campus entrances	Benches/sitting	Campus as a public space	Building exterior cohesiveness	Big lawns and open spaces	Water features or fountains
Pedestrian flow	Pedestrian experience	Campus self- contained city	Lighting	Pedestrian circulation	Trees
ADA and accessibility	Campus safety	Landscaping	Public gathering space	Flexible and dynamic campus plan	Artwork
Sitting areas	Sitting areas	Park-like open spaces	Shaded seating space	Access to the campus	Campus layout
Water features	Shaded structures	Outdoor learning	Shade trees	Clear and attractive entrances	Campus entrances
Size of a campus	Landscaping	College town life	Natural landscaping	Public Art	Benches/seating
Plazas and open spaces	Sense of community	Sitting area	Fountains	Defined campus edges	Meeting space
Greenery across the campus	Water features	Fountain	Mobile seating with tables	Sense of place	Lighting
Outdoor learning	Signage	Statues	Accessibility	Landmarks	Trash receptacles
Public arts	Flexibility of campus	Hub of activities	Sense of place	Landscaping	Walkways
Circulation	Human scale design	Placing buildings around open space		Natural preserve	Signage
Size of a campus	Location of campus			Seating areas	Building exterior cohesiveness

Table 2.1.2 most common design factors from literature review

Pedestrian circulation (5)	Attractive entrance to the campus (4)
Naturalistic design (6)	Public art (4)
Greenery, lawn (8)	Size and shape of the campus (5)
Flexible campus plan for future expansion (3)	Open spaces (3)
Grand Axis (3)	ADA and accessibility (4)
Lighting (2)	Focal point (1)
Connectivity and circulation (4)	Extensive landscaping (7)
Visibility (1)	Sustainability (1)
Human scale (1)	Seating/ Benches (6)
Water features (6)	Gathering areas/meeting places (5)
Gazebos\shade structures (3)	Sense of place (5)
Signage and landmarks (3)	Outdoor learning (3)

2.4 UT Arlington Campus Location

2.4.1 History of UT Arlington

To provide quality education in Arlington, a civic leader, Edward Emmett Rankin along with Lee M. Hammond and William M. Trimble established the Arlington Institution. Since 1895, UT Arlington has seen continuous changes from land expansion and structural development to student growth. During the period of time 1902 – 1967, UT Arlington had six different names: Carlisle Military Academy, Arlington Training School, Arlington Military School, Grubbs Vocational College, North Texas Agricultural College and Arlington State College. After becoming a part of the University of Texas system in 1965, the school was renamed as The University of Texas at Arlington. The school has grown from 75 students and a two-story building to a 420-acre campus with more than 100 buildings today (UTA Library, 2016). Aerial views of Arlington State College in 1960 and 1967 are shown in figure 2.4 and figure 2.5 respectively.



Figure 2- 4 Aerial View of Arlington State College, 1960 (UT Arlington libraries photo collection, 2016)



Figure 2-5 Aerial View of Arlington State College looking east, 1967(UT Arlington libraries photo collection, 2016)

The oldest buildings on campus include Ransom Hall, Preston Hall, College Hall, and Brazos House (Evelyn & Worcester, 2015). Other major buildings on campus such as the Central Library (George Dahl), the Chemistry and Physics Buildings (Perkins + Will), the Engineering Research Building (ZGF Architects) and College Park Center (HKS. Inc.) were designed at different times by different architects (Todd, 2008). Cooper Street divides the whole campus into two parts, the east campus and the west campus. The first campus master plan of the UT Arlington campus was in 1999 by Ford, Powell & Carson. and was later updated in 2005 (UTA website, 2007).

2.4.2 The University of Texas at Arlington Now

The master plan for UT Arlington was updated in the year 2000 to accomplish improved traffic flow and a way-finding system in order to make the campus a more welcoming place for its users (staff, students, faculty and visitors). UT Arlington is achieving a stronger sense of place and an engaged campus-life experience for the users of the campus. UT Arlington is focusing on creating a more sustainable environment and creating traditional campus-quads, attractive outdoor places, and pedestrian circulation systems in addition to other amenities.

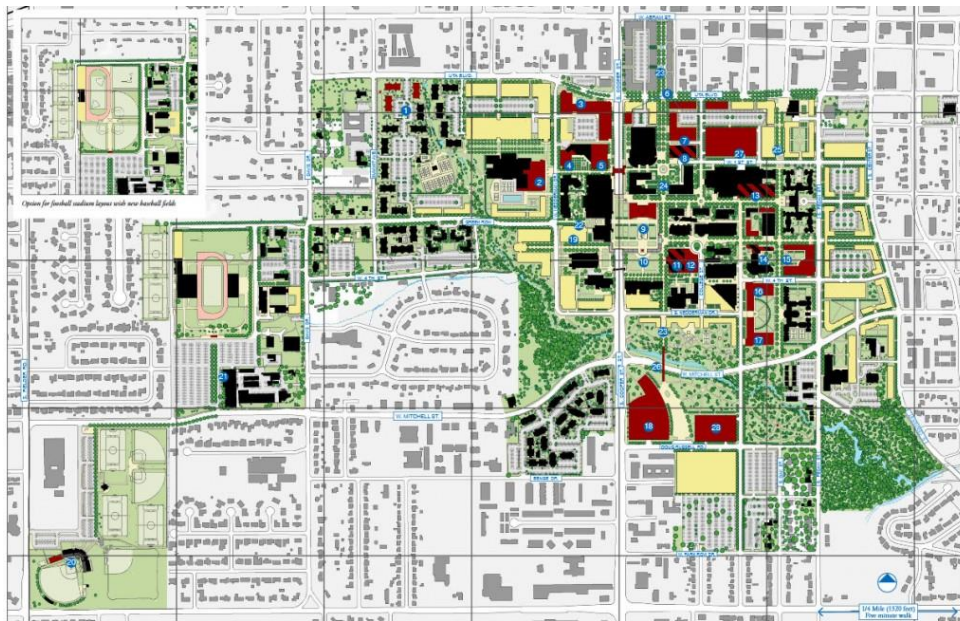


Figure 2-6 Master Plan for The University of Texas at Arlington, 2005 (UTA Website, 2014)

The new master plan updated from year 2005-2020 was approved in 2007(Figure 2.6). The University of Texas at Arlington campus plan is flexible, as it never had a fixed master plan. Student enrollment at UT Arlington has increased significantly in recent years, which has led to a great number of changes to the university. It includes

new academic building, and new residential halls and apartments. This campus has several characteristics including traditional and modern campus planning. Traditional campus planning elements include the old buildings on campus and the alley of trees towards the university center whereas the modern elements include a water feature, large lawns, and public arts, etc. The combination of new and old features makes for a unique atmosphere at UT Arlington.

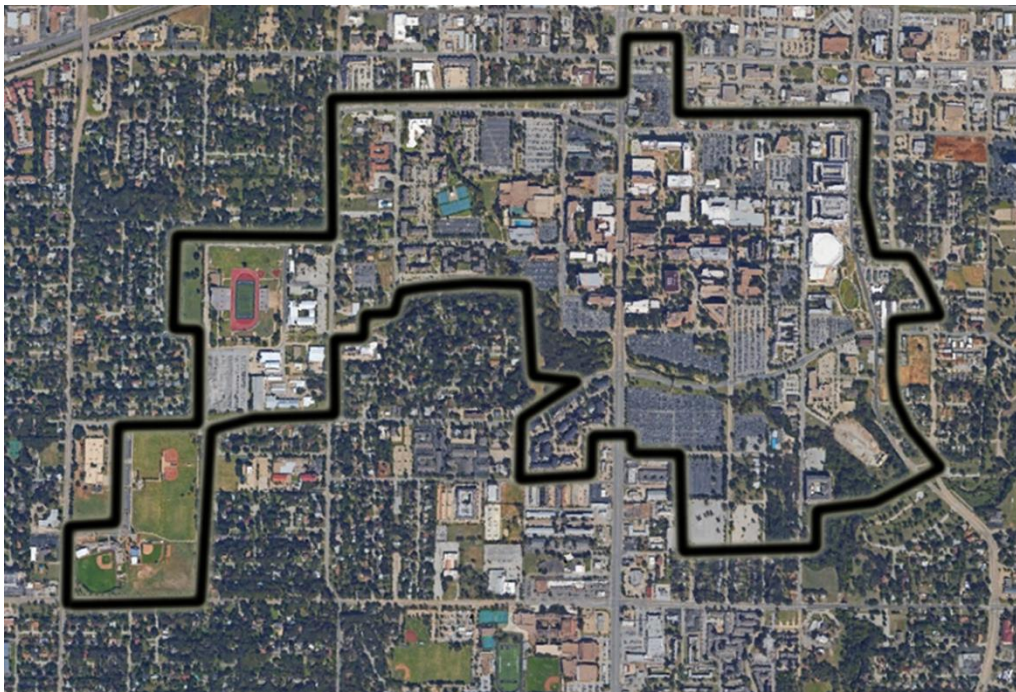


Figure 2-7 The University of Texas at Arlington satellite view (Google Maps, 2015).

2.5 Perception

While studying users' perceptions of campus landscapes, it is important to understand how their perceptions influence the users' experience and choice of places to be on campus. Visual features and characteristics of a place produce these special perceptions (Wills 2008). "Perception includes the esthetic experience, where the dialogue between perceiver and object is immediate, intense, and profound, seemingly

detached from other consequences (Lynch & Hack p.154).” Furthermore, perception is the term stated by environmental psychologists Kendra Cherry (2010): “The process of perception involves synthesizing, organizing, and interpreting sensory information in a meaningful way (Cherry, 2010 p, 63). Furthermore, he discusses the two factors of perception, listed below:

- Bottom up processing– Assembling characteristics of the target without knowing full information about the target.
- Top down processing – Assembling information based on your own knowledge, experience and expectations about the target (Cherry, 2010 p, 63).

Zube and Sell have different views about human perceptions. Their theory is explained in a transactional model of human and landscape relationships are shown in a Figure 2-8. This model shows the major elements of responding and perceiving to environmental change in the process (Zube & Sell 1986).

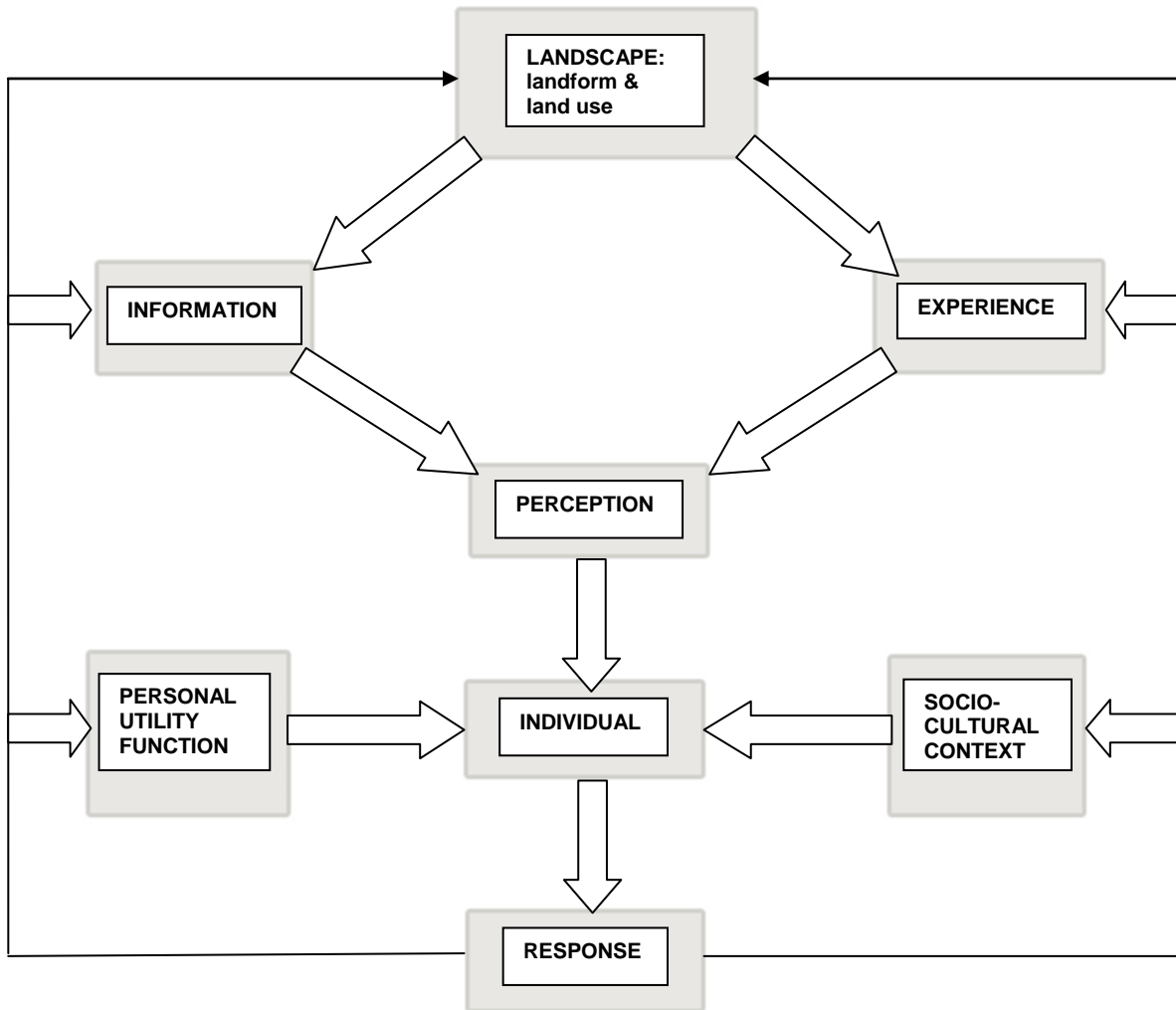


Figure 2-8: A transactional model of human and landscape relationships (Zube and Sell 1986)

Perceptions build character of a particular place or an element. It is interesting to study how users have different perceptions after experiencing the same place. In this research, users' perceptions play an integral role to determine the design characteristics on campus. Users' perceptions also can help to design campuses that are more successful.

2.6 Summary

This chapter describes the history of campus design and discusses how campus planning has evolved over time. It also discusses the concept of campus landscape through various literatures of Turner (1984), Dober (2000), Gaines (1991) and many others. In addition, this chapter also has a brief history of The University of Texas at Arlington and a review of master planning activities regarding UT Arlington campus. Furthermore, the importance of design elements in campus design is reviewed from the literature. A matrix has been generated of these design elements for research methods. Important factors derived from literature are used to shape the questions covered in this research as viewed in the following chapters. The next chapter reviews research methods and how data was collected and analyzed. Chapter 4 show the analysis and findings obtained from these research methods. Finally, conclusions are listed in Chapter 5.

Chapter 3

Research Methodology

3.1 Introduction

This chapter describes the methods used for this research. This research primarily uses a Quantitative method to gather and analyze the data. Chapter 3 discusses the application of these research methods to assess users' perceptions of campus landscapes at UT Arlington. The chapter first reviews research design by covering the study population and location, and data collection and analysis methods.

3.2 Research Design

This research primarily uses quantitative methods to gather and analyze the data to understand and assess the UT Arlington campus landscape. The quantitative method attempts to explain phenomena by collecting numerical data that are analyzed using mathematically based methods (Deming and Swaffield, 2011). Data collection methods include online and in-person surveys (Ozdil, et.al. 2013, UT-Dallas-methodology," 2013, State, 2015, "University of Alabama," 2011, "South Texas college master plan survey," 2008), passive on-site observations (Francis & Marcus, 1998) and a systematic review and summary of archival and secondary data as well as literature relevant to the design and of campus landscapes. Research uses data triangulation to review and assesses the design of campus landscapes (Cohen and Manion 1986). Figure 3.1 shows the research design for this study.

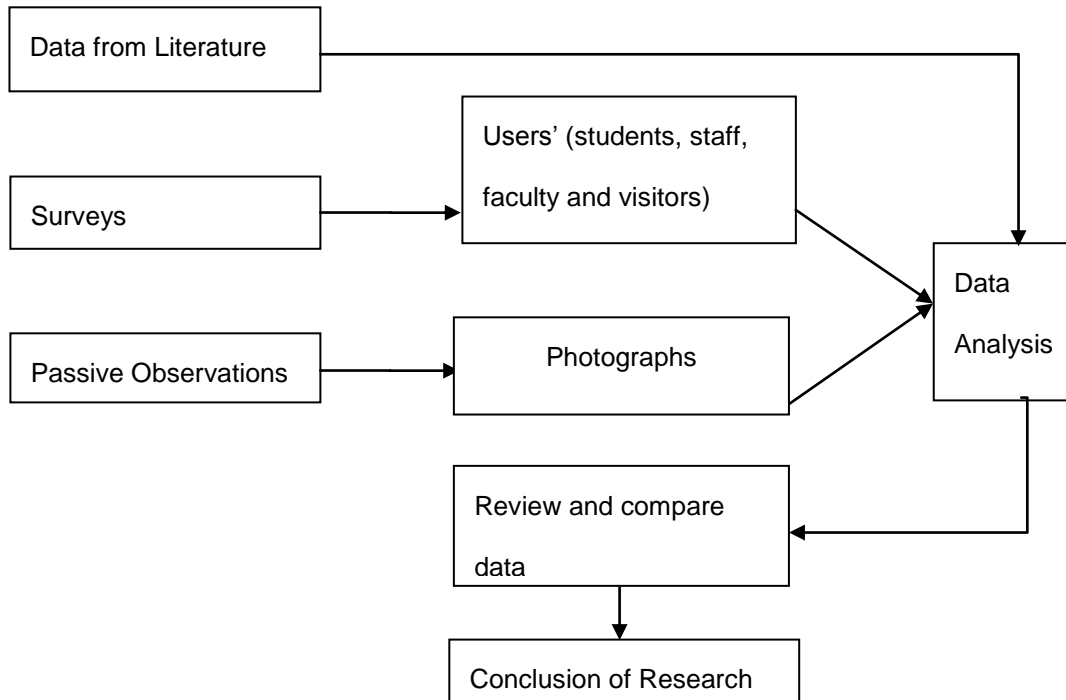


Figure 3-1 Research Design

The procedure in this research includes the following steps:

- Conducting online surveys throughout the UT Arlington campus.
- Passive observation in the form of digital photographs to assess users' perceptions of campus landscapes at UT Arlington.
- Studying data from literature review and the collection of background information of the UT Arlington campus such as history and, campus plan evolution over the period.
- Comparing and interpreting the data using the data triangulation method.

3.2.1 Study Population

This study uses campus users' perception as a main data source. The users in the campus include students, faculty, staff and visitors.

Survey participants were recruited randomly, face-to-face as well as through emails sent to UTA colleagues and through the social network. Although every attempt has been made to reach out to all campus users, since there was no single list, a combination of convenience and snowball sampling was used to recruit participants of the survey (Goodman 1961; Salkind 2010). The identities of the participants remained anonymous throughout the period of the survey and analysis process.

3.2.2 Study Location

The site used in this study is the campus of University of Texas at Arlington located in Arlington, Texas. It has around 420 acres on the campus. This particular place has been selected because it is the second largest institution in the UT System. In the year 2015, the enrollment at UT Arlington was approaching 48,000 students. The UT Arlington campus was once known as a commuter campus; however, it is now seeking to change its image to that of a residential campus. This campus does not have a continuous master plan of its own; its landscape has been designed in pieces. See Figure 3.2 below.

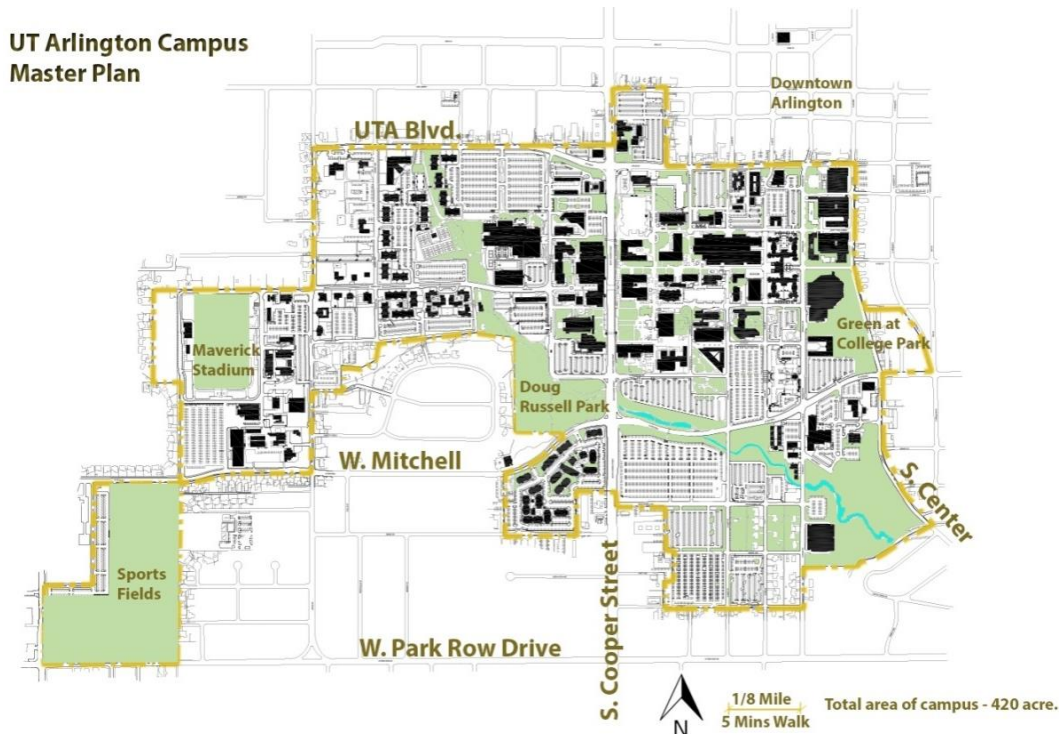


Figure 3-2 Master plan of The University of Texas at Arlington, 2014 (Source: UTA website, 2016)

3.2.3 Data Collection Methods

3.2.3.1 Survey

An online and in-person survey was created for assessing the users' perceptions of the campus landscapes at The University of Texas at Arlington. After reviewing relevant literature and compiling data on passive observations at the UT Arlington campus, survey questions were generated. Several campus survey questions were studied and some of the relevant questions were used in this survey. A few of the resources for survey questions are Kansas State University, the University of Dallas, the University of Alabama, South Texas College and Harvard College ("UT-Dallas-methodology," 2013, State, 2015, "University of Alabama," 2011, "South Texas college master plan survey," 2008). The survey consists of both close-ended and open-ended questions. Close-ended

questions allow for comparisons of specific answers by giving only certain choices from which to pick (Peterson, 2000). The survey is divided into 4 sections. Section One includes profile questions of the respondent, Section Two questions are rated using a modified Likert scale, a widely used rating scale, named after developer Rensis Likert (Peterson, 2000). Section Three has open-ended questions and the last section is for general comments. Qualtrics online survey software, site licensed to UT Arlington, is used to design and distribute survey instruments.

Before the distribution of survey, all the questions were submitted to and approved by the Institutional Review Board (IRB). A consent form was also approved by the IRB for each participant to sign. Participants were asked to sign/accept the consent form before taking the survey (See Appendix C).

The design literature review matrices (see Tables 2.21.1 and 2.2.1.2) have been further analyzed to understand the design factors that found the greatest importance in campus landscape design literature. The number of appearances of design factors in the matrix used as indicator as to what should be considered as survey questions. Table 3.1 shows the newly generated design elements matrix that has been used for passive observation. The design elements from the matrix have also been used to prepare the survey questionnaire.

Table 3.1 Design Elements Matrix

Pedestrian circulation (5)	Attractive entrance to campus (4)
Naturalistic design (6)	Public art (4)
Greenery, lawn (8)	Size and shape of campus (5)
Lighting (2)	Open spaces (3)
Connectivity and circulation (4)	ADA and accessibility (4)
Water features (6)	Focal point (1)
Gazebos\shade structures (3)	Extensive landscaping (7)
Signage and landmarks (3)	Sustainability (1)
Sense of place (5)	Seating/ benches (6)
Outdoor learning (3)	Gathering areas/meeting places (5)

3.2.3.2 Passive Observation

Observation enables you to quantify what would otherwise be regarded as intuitional or optional (Madden, 2000). The method of passive on-site observation is used in this research for better understanding of users' perceptions of campus landscapes at UT Arlington. Passive observations have the advantage of minimizing possible influences that the researcher may exert on park users during the observation process (Spradely 1980). The UT Arlington campus has been captured photographically to record the positive and negatives of UT Arlington campus landscapes. Observations have been recorded during the day in March. Data gathered from passive observations has been

arranged on spreadsheets. The behavior mapping method was used to observe and record the findings at the UT Arlington campus (Marcus & Francis, 1998).

3.2.3.3 Archival and Secondary Data

Secondary and archival data was used to associate historic information, imagery and maps. This data information was obtained from the special collection in the Central Library at UT Arlington. The design characteristics were identified from previous literature, which was collected and organized in the matrix by the researcher. This matrix has been used for passive observation and for the preparation of the survey questionnaire. Studying secondary and archival data enhance the understanding of overall physical environment at UT Arlington.

3.3 Data Analysis and Data Triangulation

As Cohen and Manion state, "triangulation is defined as an "attempt to map out, or explain more fully, the richness and complexity of human behavior by studying it from more than one standpoint" (Cohen and Manion, 1986, p.254). Each dataset was first analyzed independently for example the survey is analyzed using descriptive statistics and frequencies. All the findings from three different research methods have been analyzed using the triangulation method. Triangulation is used to indicate that more than two methods are used in a study with a view to double or triple-check results. This is also called "cross examination." Researchers can be more confident of a result if different methods lead to the same result. By using three methods to get the answer to one question, the hope is that two of the three methods will produce similar answers; if three clashing answers are produced, the investigator knows that the question needs to be reframed, methods reconsidered, or both. Triangulation is a powerful technique that

facilitates the researcher in validating data through cross-verification from more than two sources (Cohen and Manion, 1986).

The four basic types of triangulation are data triangulation, investigator triangulation, theory triangulation, and methodological triangulation (Denzin, 1978). Data collected from three different methods is triangulated using the data triangulation method.

3.4 Bias and Errors

Following are few bias and errors in data collection methods:

- Online surveys were distributed with a combination of convenience and snowball methods; therefore, the number of participants who received the invitation for survey is unknown.
- In-person surveys were conducted on different days, different times and different places inside the campus. The weather and temperature might have influenced the answers.
- Users' perception plays an important role in this survey, users' with different educational background, might respond differently than others. This might affect the results.
- The data collection period was bounded by the academic calendar of the University and the schedule of the researcher.
- Data collected is limited to the UT Arlington campus. Due to this limitation, results should not assume to be true for other campuses.

3.5 Summary

To assess the users' perception on campus landscapes at UT Arlington campus three research methods were used: 1) surveys, 2) passive observation, and 3) archival and secondary data including literature review. The data obtained from all three methods

was triangulated using the data triangulation method. A matrix of design elements from literature review was used as a basis for the survey questions and passive observations. The users' surveyed for this research include, staff, faculty, students and visitors of the UT Arlington campus. Passive observations were conducted during the day on weekdays and weekends in the month of March. The researcher collected her impressions of the UT Arlington campus landscape systematically documenting sites with notes and photography. Chapter 4 explains in detail the analysis and major findings of this research.

Chapter 4

ANALYSIS AND FINDINGS

4.1 Introduction

This chapter focuses on the analysis and findings from the research protocol outlined earlier in this thesis. The analysis focuses on the perceptions of users at the UT Arlington campus landscapes by reviewing findings from each of the data collection methods: online surveys, passive observations, and secondary/archival data.

4.2 Overview of Research Methods

A systematic review of the three-research methodology: online surveys, passive observation, and secondary data and/or literature review was used to extrapolate the findings of this study. Online surveys were conducted using a four-page survey questionnaire with an IRB consent approval cover sheet describing the research (see Appendix A). Pretesting was completed on classmates and friends who are in the targeted survey participant demographic. After getting feedback from the pretest group about the survey questions and the timing, survey questions were distributed to the greater UT Arlington campus community. Analysis from the surveys yielded specific results that were charted, and the data collected was compiled into spreadsheets using descriptive statistics and frequencies. The total time span for the survey data collection was five weeks from the date of IRB approval (see Appendix B). Passive observations were conducted during 9am to 7pm in March 2016 to document the researcher's perception of the campus landscape. When found appropriate data from secondary sources, archives, and literature were used as supporting data. Finally, the data triangulation method was used to analyze the findings from these three research methods. Findings are further described in the data analysis section.

4.3 Survey and Passive Observation Findings

The survey is separated into four parts. The first part of the survey has profile-based questions for the survey participants. The second part includes thirty-one Likert scale questions. Questions are based upon the participant's perceptions of campus landscapes at UT Arlington. This second part divides into two additional parts: Part A has questions related to design elements and Part B includes questions related to experience. The third and fourth parts are composed of open-ended questions on campus landscapes at UT Arlington to get details and insights from the participants (see Appendix A). The following section covers findings from each section of the survey in the order outlined above while combining these findings with other relevant information acquired from observation and secondary data.

4.3.1 Profile Information

A total of 342 users of the UT Arlington campus took the survey and the five profile-based questions from Part 1 of the questionnaire and their findings are presented here. Analysis of the responses illustrated that 75% of the survey participants were students, whereas 17% were faculty and staff and 8% included visitors, alumni, etc. Among those who completed the survey, 34% of the survey participants live on campus, whereas 66% do not. Out of all the survey participants, 54% of them use a car to get to the campus, while 41% walk to the campus, 3% use a bike and 1% use public transportation to reach the campus.

Survey participants were also asked about their purpose for visiting the UT Arlington campus. Out of all the survey participants 74% come to campus for education purposes, while 22% come to campus for work and 4% were visitors. When survey participants were asked how often they visit the UT Arlington campus, statistics shows that 55% of the survey participants go to the campus daily, 34% of them go multiple times

a week, 4% of them go once a week, and 4% once a month. The remaining 3% do not have fixed timings. Findings from the online surveys, passive observation and the review of secondary data are combined and presented.

4.3.2 Likert Scale Questions – Survey Part 2

The participants asked to rate statements on the UT Arlington campus landscapes based on a modified Likert scale (Peterson, 2000). As stated in the previous chapters, the 31 statements in this part were structured based on common design elements and experiences documented in the literature review. This section combines and analyzes the responses in the survey regarding design elements of the observations made by the researcher. This survey included five Likert scale options: strongly disagree, disagree, neutral, agree and strongly agree. To simplify the results, these categories were later reduced to disagree, neutral and agree after an initial analysis.

The survey inquired about a number of design features and the users' experience at the University of Texas at Arlington: sitting, gathering spaces, outdoor activities, vegetation, pedestrian circulation, parking etc. The following section analyzes the survey participants' responses and compares them to the passive observations made.

Design Characteristics Findings – Survey Part 2 A

4.3.2.1. *The campus landscape encourages outdoor recreation.*

Survey findings show that 57% of the participants agree that the campus landscape at UTA encourages outdoor recreation (Figure 4-1). Outdoor recreation is important for the quality of life and a sense of community on campus. It was observed that UT Arlington does provide opportunities for outdoor recreation on campus. Campus landscape encourages outdoor sports, organized events, etc. (Figure 4-2).

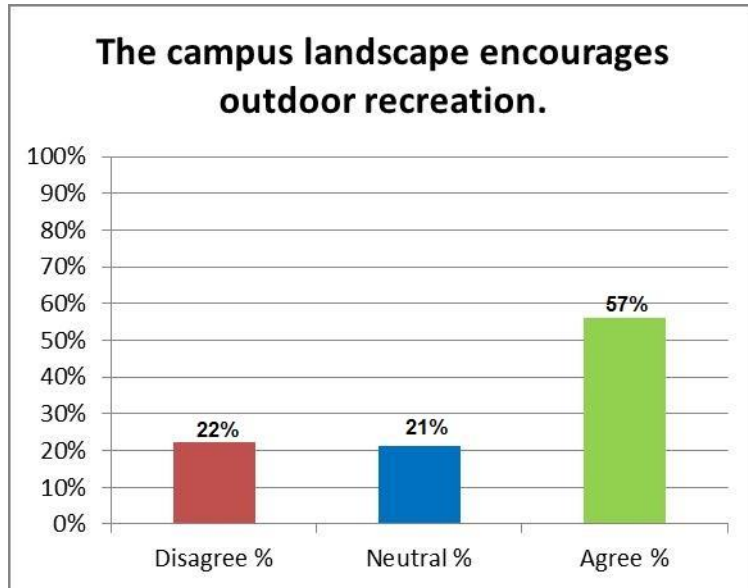


Figure 4-1 Survey result for outdoor recreation



Figure 4-2 Outdoor recreational use at UT Arlington

4.3.2.2. *The campus landscape encourages outdoor education.*

About 40% of the participants felt that the campus landscape at UT Arlington encourages outdoor education (Figure 4-3). Outdoor learning environments give opportunities for community interaction that foster a sense of belonging (Scholl, 2015). Although UT Arlington has few areas, which promote an outdoor leaning environment, they are not explicitly mapped or signs provided to illustrate where they are located on campus. The Architecture courtyard is found to be used for one of the outdoor learning area on campus (Figure 4-4).

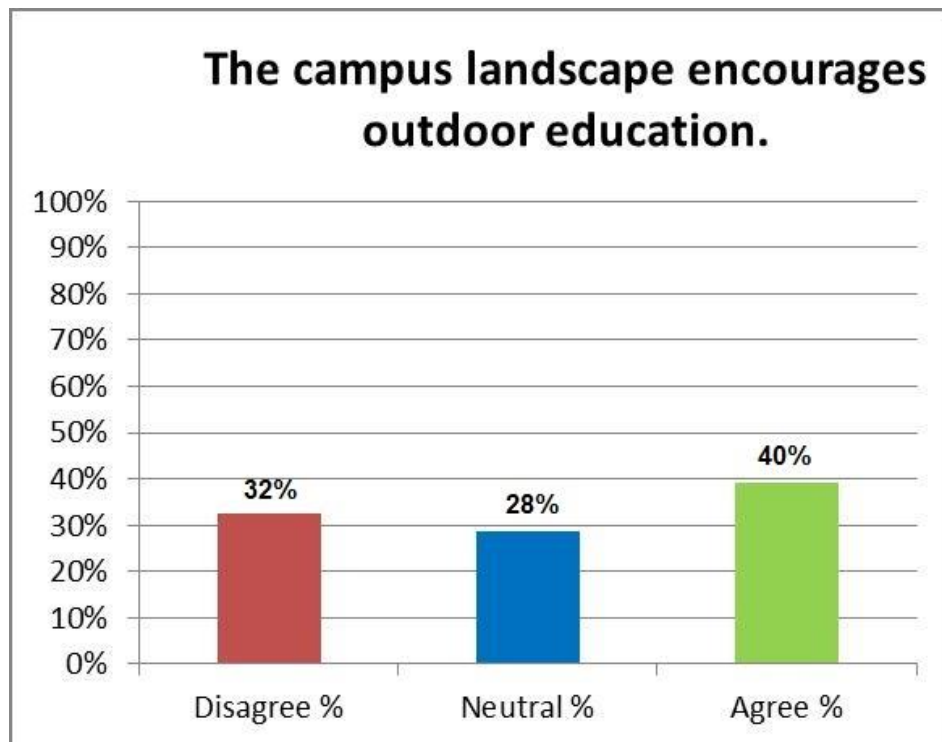


Figure 4.3 Survey results showing outdoor education



Figure 4-4 Outdoor education at UT Arlington campus (UTA Website, 2010)

4.3.2.3. The campus landscape accommodates scheduled/organized outdoor events.

The survey results yielded that 69% of survey participants agree with the statement that the campus landscape accommodates scheduled and/or organized outdoor events (Figure 4-5). Several type of events such as outdoor movies and concerts were observed during passive observation at different times of the day (Figure 4-6)

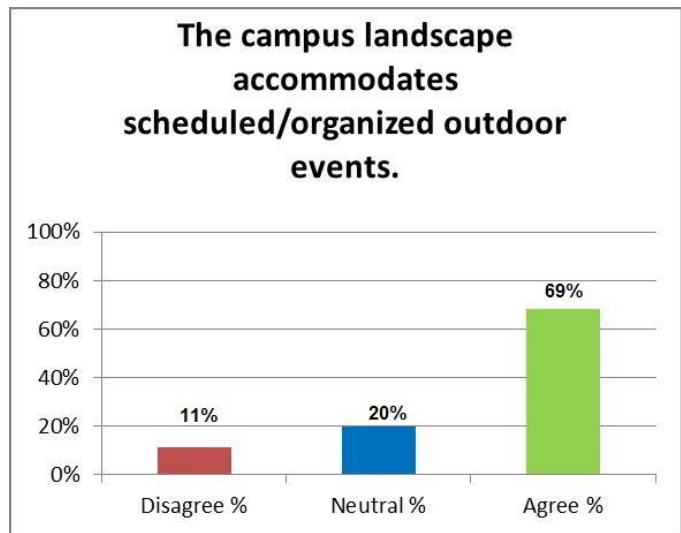


Figure 4-5 Survey results showing outdoor events



Figure 4-6 Outdoor events at UTA (Sanmitra Saudatti, 2016)

4.3.2.4. The campus landscape accommodates evening and/or nighttime outdoor activities.

A total of 49% of the survey participants agree that the campus landscape accommodates evening and/or nighttime outdoor activities (Figure 4-7). Users at UT Arlington often seem to enjoy outdoor activities in the evening and nighttime whether it is study or just meeting and socializing. Adequate lighting throughout the UT Arlington campus encourages outdoor nighttime events (Figure 4-8).

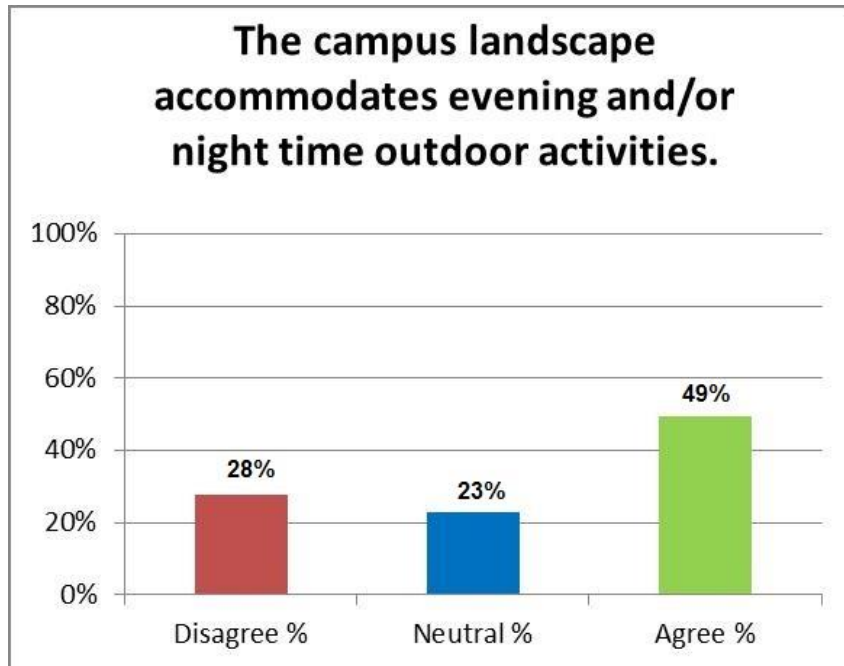


Figure 4-7 Survey results showing outdoor activities at night



Figure 4-8 Outdoor activities at night (UTA Website, 2010)

4.3.2.5. *There is sufficient lighting provided throughout the UT Arlington campus.*

Around 50% of the survey participants agree that the UTA campus has sufficient lighting whereas 36% of the survey participants disagree with the same statement (Figure 4-9). Through passive observation, it was observed in some areas that lighting is sufficient on campus, like the Music Hall, for example. However, in some areas on campus, lighting is not very well distributed such as outside the Architecture Building, which creates an unsafe environment (Figure 4-10).

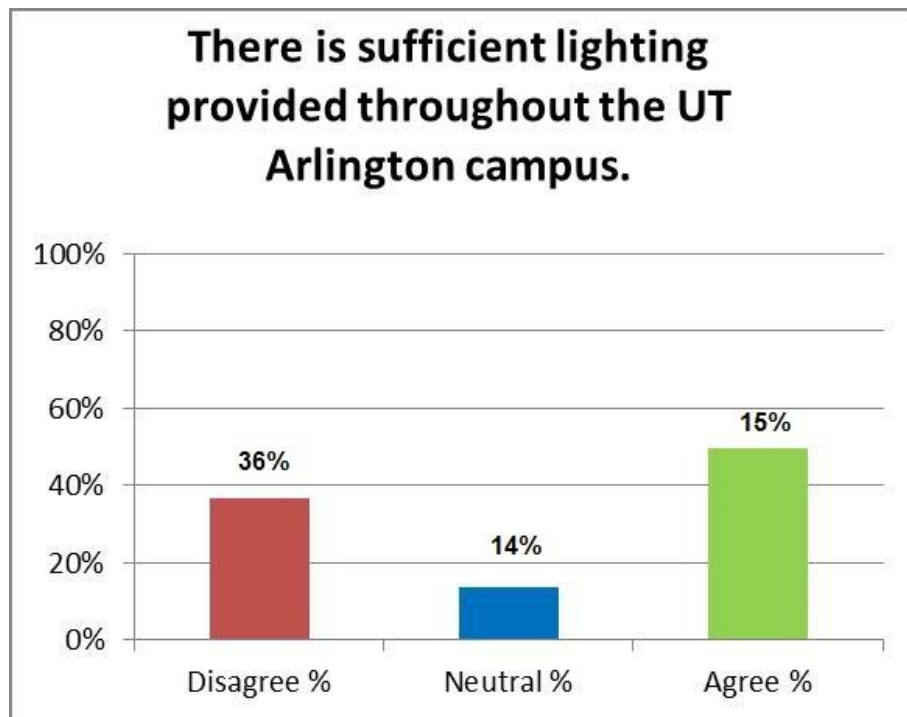


Figure 4-9 Survey results showing sufficient lighting

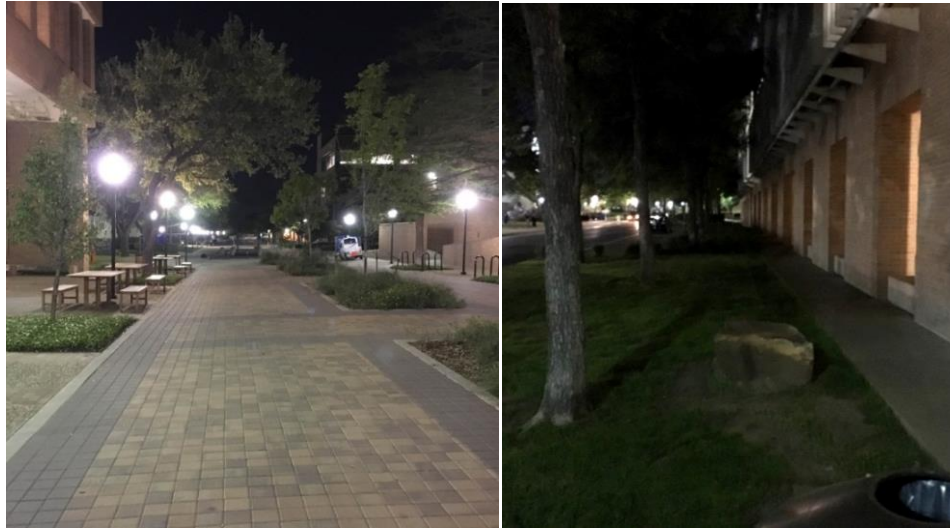


Figure 4-10 Sufficient and insufficient lighting at the UT Campus

4.3.2.6. Buildings at the UT Arlington campus are appealing.

About 47% of the survey participants believe that UT Arlington campus buildings are appealing (Figure 4-11). UT Arlington has a combination of traditional and modern building designs. Some of them are well designed which complements the overall campus landscape. (Figure 4-12). In addition, the College Park Center building is LEED gold certified which shows environmental awareness of the UTA campus. Presence of few historically significant buildings on campus adds on to the beauty of overall appeal.

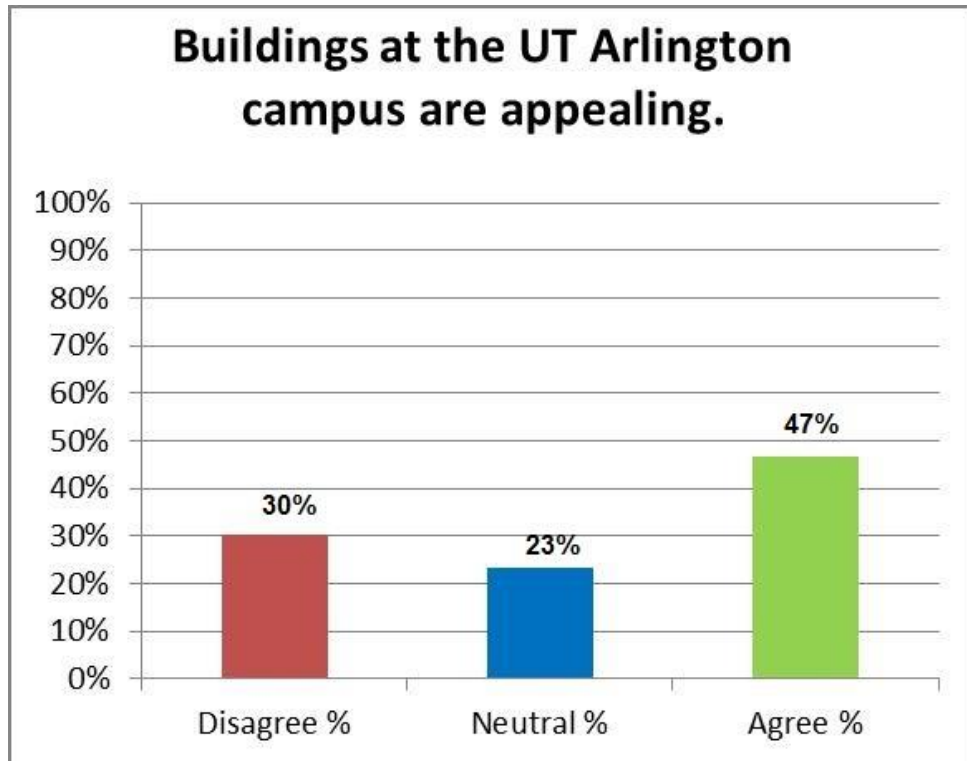


Figure 4-11 Survey results showing appearance of building in Campus



Figure 4-12 Appearance of building on campus

4.3.2.7. *Buildings at the UT Arlington campus are well-distributed and create a good hierarchy of outdoor spaces.*

Out of all survey respondents, 57% of them agree that the buildings on the UT campus are well distributed and create a good hierarchy of outdoor spaces. Whereas, 26% of survey participants disagree (Figure 4-13). Passive observation findings revealed that the campus offers a variety of spaces concentrating on the size of the UT Arlington campus landscape and buildings. However, as the UT Arlington campus does not have a clear open and green space master plan, the spaces created in between buildings are not necessarily well distributed or programmed to create a good hierarchy of pedestrian spaces.

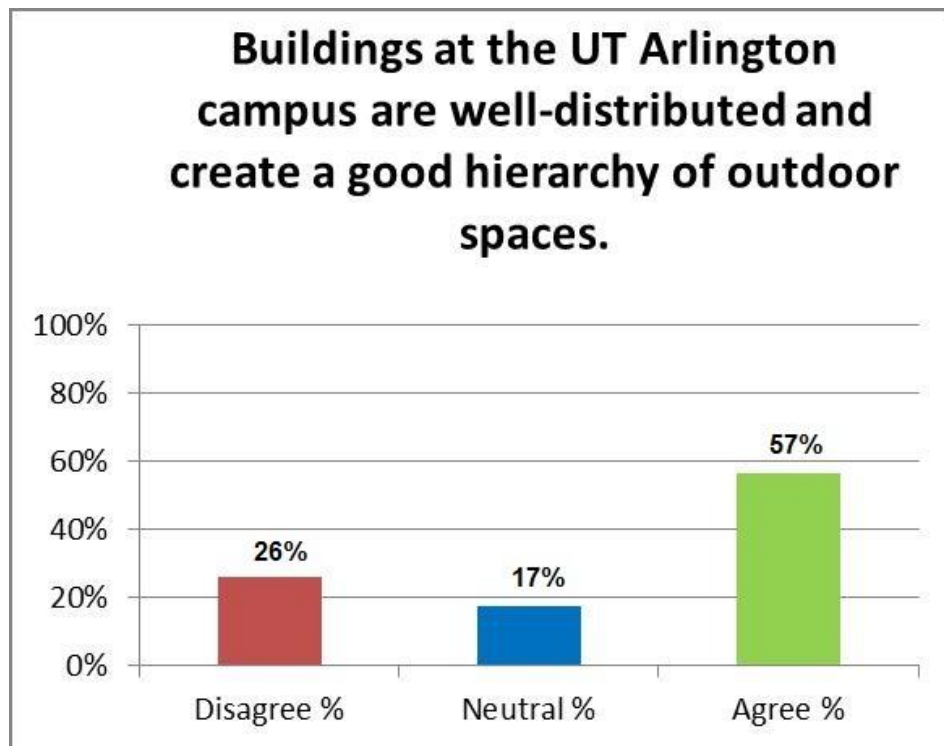


Figure 4-13 Survey results showing well distribution of campus

4.3.2.8. *There are sufficient outdoor gathering spaces on campus to meet, study, and socialize.*

Only about 55% of survey participants agree that UT Arlington has sufficient gathering spaces to socialize (Figure 4-14). Detail survey results show that 56% students and 45% faculty/staff agree on sufficient gathering spaces on campus whereas, 26% of the students and 24% faculty/staff disagree. Gathering places strengthen learning opportunities and social connections on campus. UT Arlington has several outdoor areas where users can socialize, gather, and study (Figure 4-15). However, passive observation reveals that there are opportunities at UT Arlington campus to accommodate more numbers of meeting and gathering areas for users. The majority of these spaces currently seem to concentrate around the Main Library creating opportunities to look at other open spaces to be programmed for such outdoor activities.

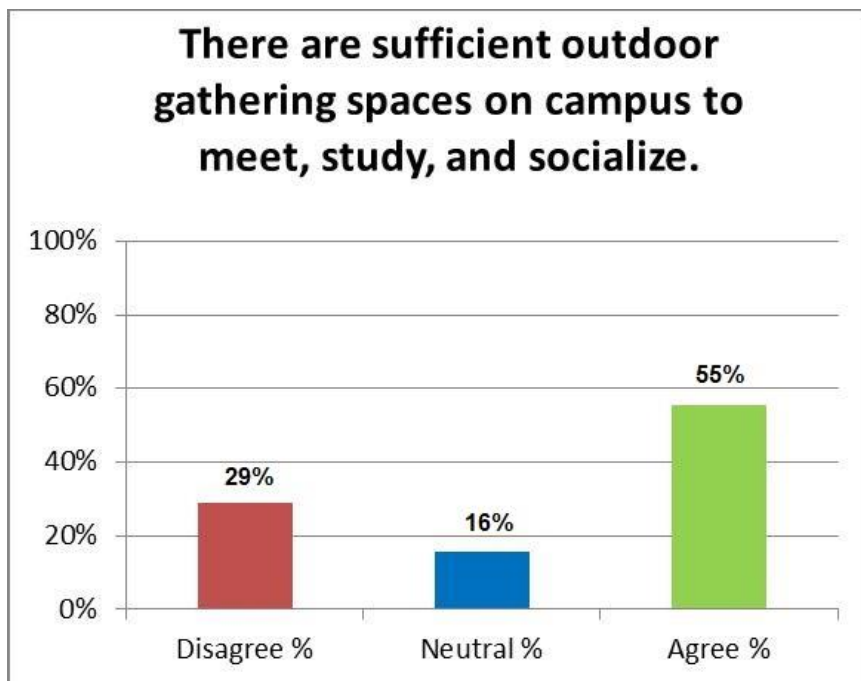


Figure 4-14 Survey results showing sufficient gathering space



Figure 4-15 Gathering space at the UT Arlington campus

4.3.2.9. The campus landscape has enough seating areas.

Around 43% survey participants think the UT Arlington campus has sufficient sitting areas, whereas 40% disagrees about the sitting areas (Figure 4-16). Literature shows that in walkable public places, an adequate number of seating areas is most important (Scully & Schmitz, 2005). Passive observation reveals that the campus has several sitting areas, but they are not necessarily placed at the right junction where they can be used very well. An example of such is the semi-covered sitting area near the East-West crossing bridge (Figure 4-17). However, there are other sitting areas, which are highly utilized by users on campus (Figure 4-18).

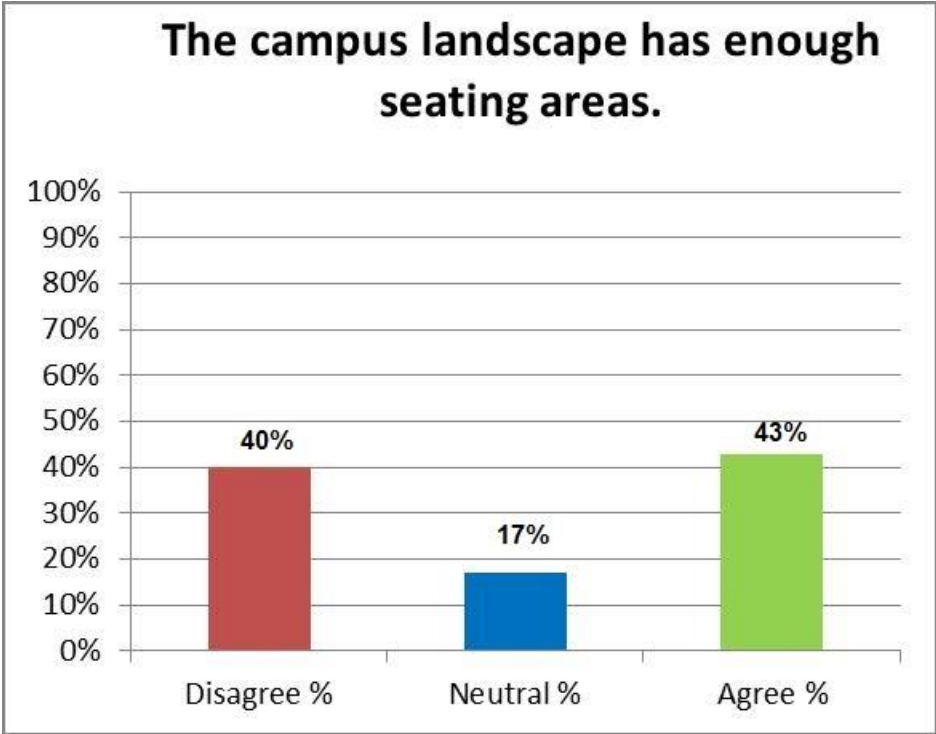


Figure 4-16 Survey results showing enough sitting areas on campus



Figure 4-17 Sitting areas on campus needing relocation

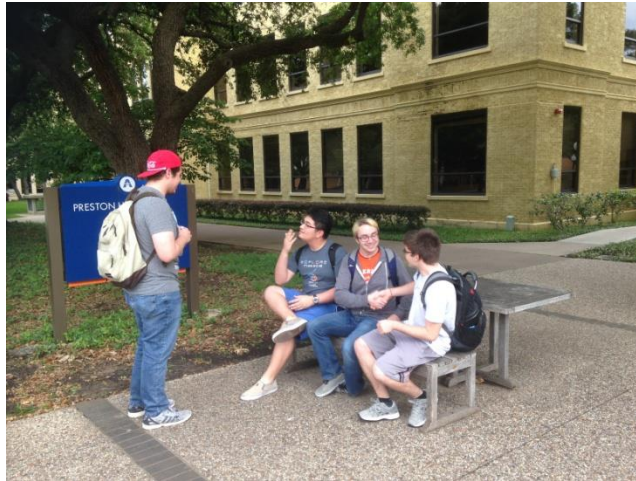


Figure 4-18 most used seating areas on campus

4.3.2.10. *The campus is accessible to all*

ADA refers to the American Disability Act, which is concerned with providing universal accessibility to everyone (Division & Rights, 2013). About 67% of the survey participants agree and 10% disagree that the UT Arlington campus is accessible to all (Figure 4-19). The researcher's site observations illustrate that the UT Arlington campus seemed to be designed based on the ADA requirements providing ramps, curb cuts, hand rails etc. to accommodate the needs of the people covered by the American Disability Act. The researcher also found that additional signage and pavement improvements could strengthen the quality of design for all.

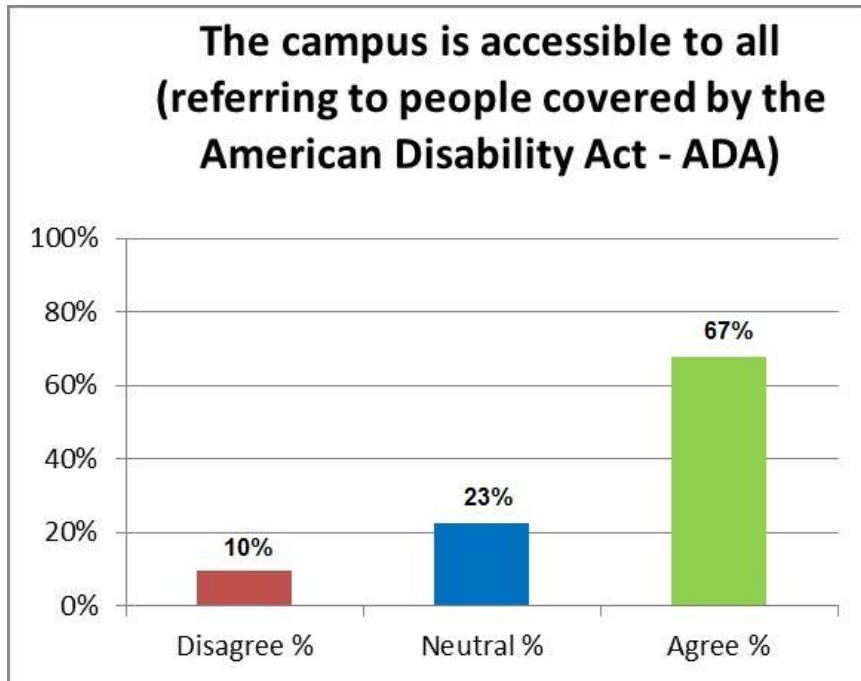


Figure 4-19 Survey results showing accessible campus

4.3.2.11. *The size of the UT Arlington campus is user friendly.*

Around 75% of the survey participants agree that the size of the UT Arlington campus is user friendly (Figure 4-20). Passive observation also shows the campus size is comfortable to be in; users feel comfortable to be on a campus that is walkable with a great network of landscape and pedestrian areas. The UT Arlington campus is compact which allow users to easily access anywhere on campus.

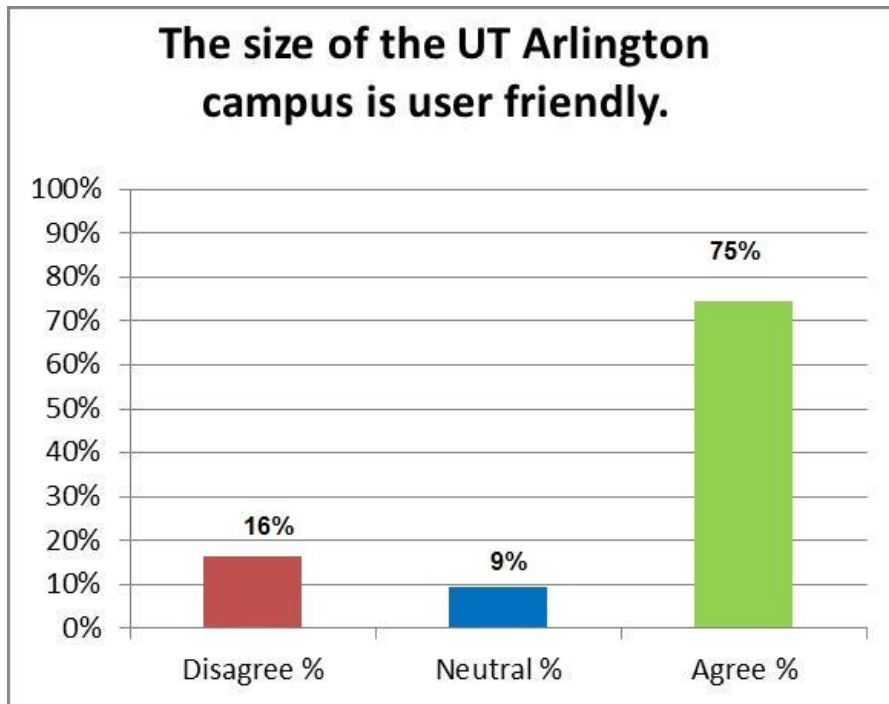


Figure 4-20 Survey results showing user-friendly campus

4.3.2.12. *The campus landscape is pedestrian friendly.*

Survey results shows that 80% of the survey participants agree that the campus landscape is pedestrian friendly (Figure 4-21). To create pedestrian friendly environments on campus, the walkways should be designed to keep users' comfort, width, and grade in mind (WVU, 2006). UT Arlington has sidewalks along most streets within the campus and shaded trees along pedestrian routes, which create a pedestrian friendly environment. (Figure 4-22).

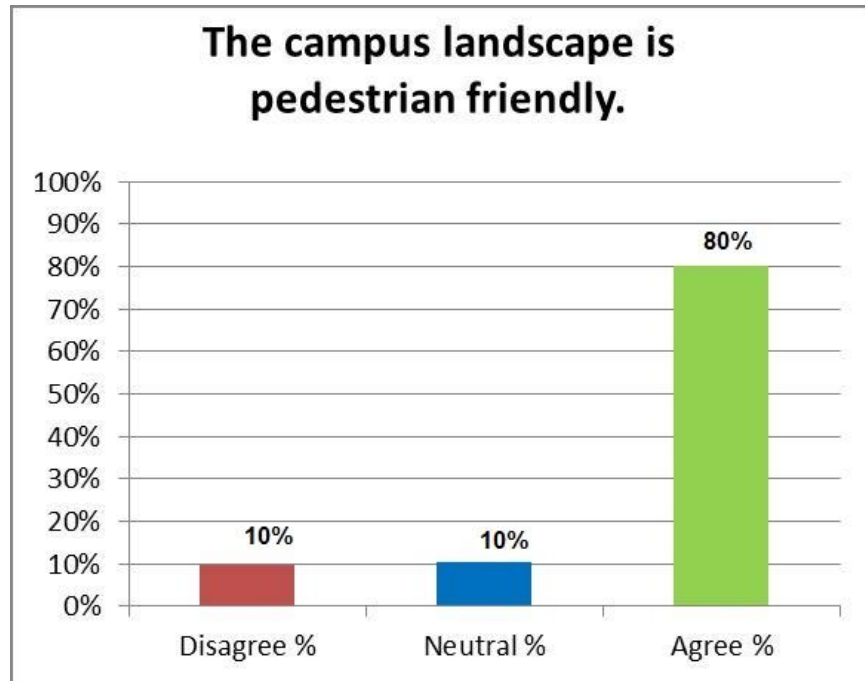


Figure 4-21 Survey results showing pedestrian friendly campus



Figure 4-22 Pedestrian friendly campus landscape

4.3.2.13. *This campus has an efficient pedestrian circulation network.*

About 70% survey participants agree that the campus landscape has an efficient pedestrian circulation network (Figure 4-23). Walking along campus walkways should honor the college identity and the surrounding environment. Passive observation reveals that the east-west campus bridges are the main elements, which bind the UT Arlington campus together, and as a result, they are highly used but do not necessarily create an efficient pedestrian circulation network at UT Arlington.

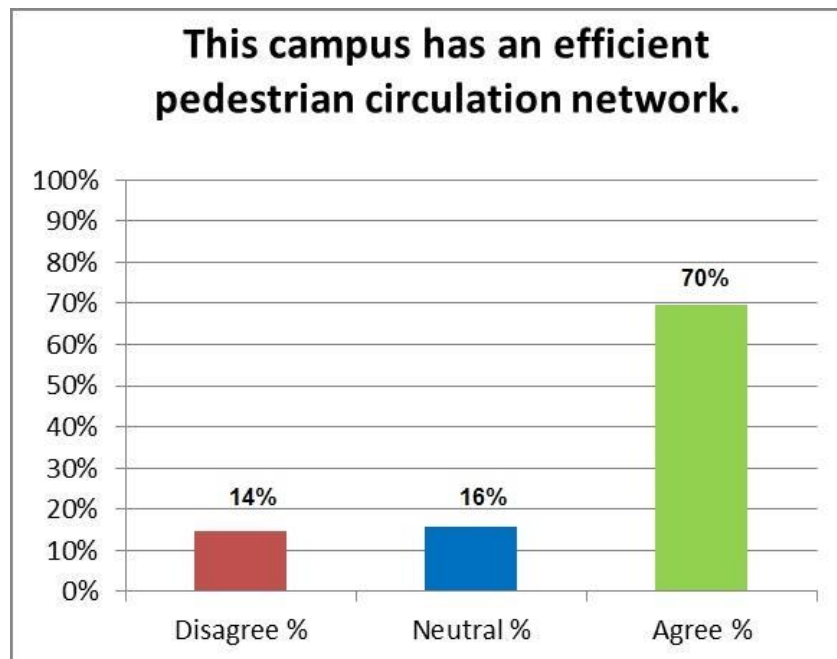


Figure 4-23 Survey results showing pedestrian circulation campus

4.3.2.14. *This campus has an efficient bicycle circulation network and facilities (designed bikeways, signs, bike lockers, etc.)*

About 40% survey participants agree, whereas 35% survey participants disagree on efficient bicycle circulation network availability on the UT Arlington campus (Figure 4-24). Passive observation shows UT Arlington campus does not have designated bike lanes all around the campus which creates conflicts between different modes of

transportation namely walking, biking, and/or vehicles. Bicyclists often share the pedestrian walkway to pass. However, bicycle lockers were present on certain areas of the campus such as outside of the University Center. (Figure 4-25).

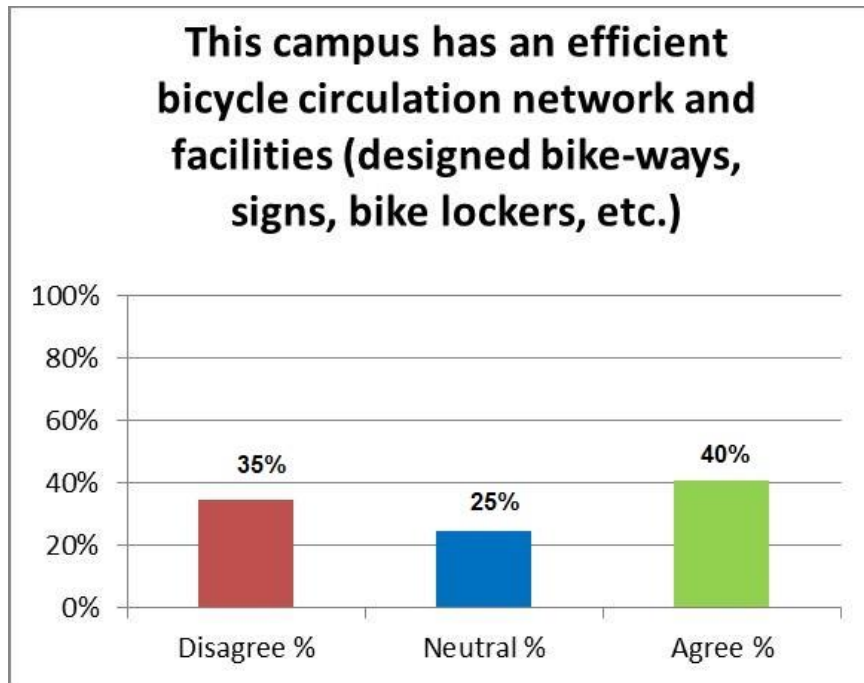


Figure 4-24 Survey results showing bicycle circulation facilities on campus



Figure 4-25 Bicycle circulation facilities on campus

4.3.2.15. *This campus has an efficient vehicular circulation network.*

Survey participants have different views in terms of the vehicular circulation network. 41% of the participants agree on having efficient vehicular circulation network and 32% disagree (Figure 4-26). UT Arlington has decent vehicular circulation network. However, there are certain areas on the UT Arlington campus that create pedestrian-vehicular traffic conflicts.

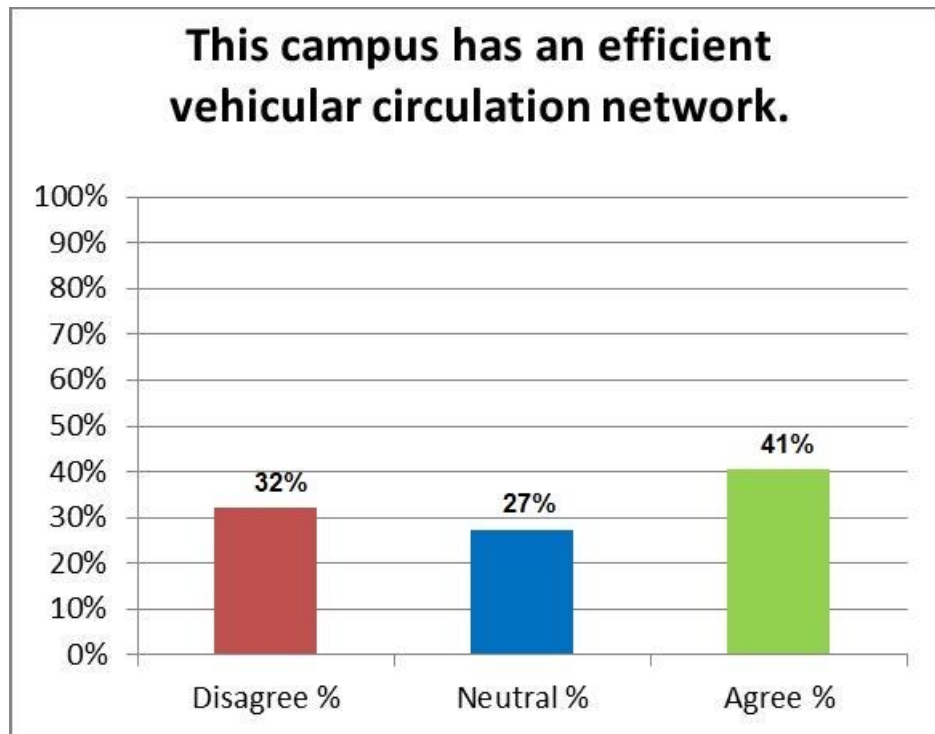


Figure 4-26 Survey results showing vehicular circulation on campus

4.3.2.16. *Parking lots are conveniently distributed throughout the campus.*

About 43% of the respondents agree with the conveniently distributed parking lots in campus and 39% disagree (Figure 4-27). Research participants seem to have differing opinion on this. Although passive observation shows there are sufficient amount of parking lots in campus (Figure 4.28) it is believed that in peak hours there is a greater demand with limited availability. With the increasing student enrollment in campus, the

need for parking lots is increasing at UT Arlington. It is possible that a broader consideration of alternative transportation modes (including public transportation and/or bike lanes) is likely to be a consideration with the growth expected on the campus. Increasing campus housing may also be a consideration to address campus accessibility.

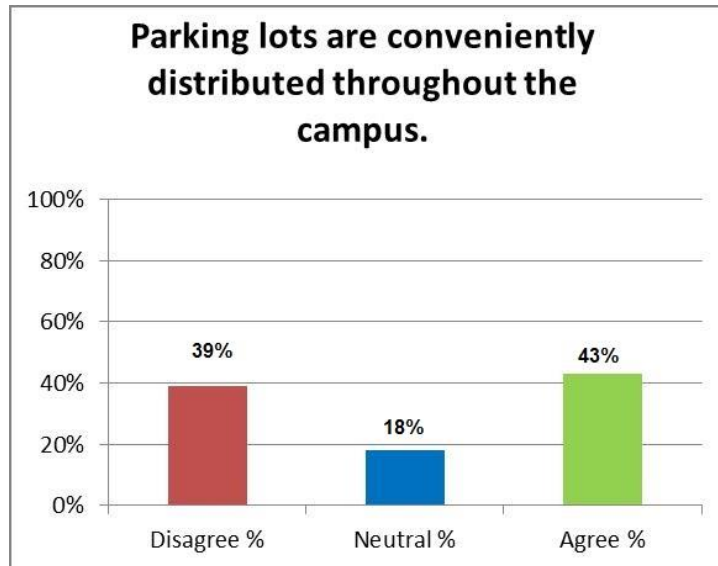


Figure 4-27 Survey results showing parking lots on campus



Figure 4-28 Parking lots on campus

4.3.2.17. *Signage is located properly to allow easy navigation throughout the campus.*

Among the total survey participants, 63% of the survey participants agree on proper location of signage throughout the campus (Figure 4-29). Signage is important for visitors as well as the existing users of the campus. Passive observation shows that UT Arlington has signage and campus maps throughout campus (Figure 4-30 and 4-31). Directional signage helps to enhance users and visitors' experience on campus. UT Arlington's signage and way finding maps can be improved in terms of location and better landscaping around them.

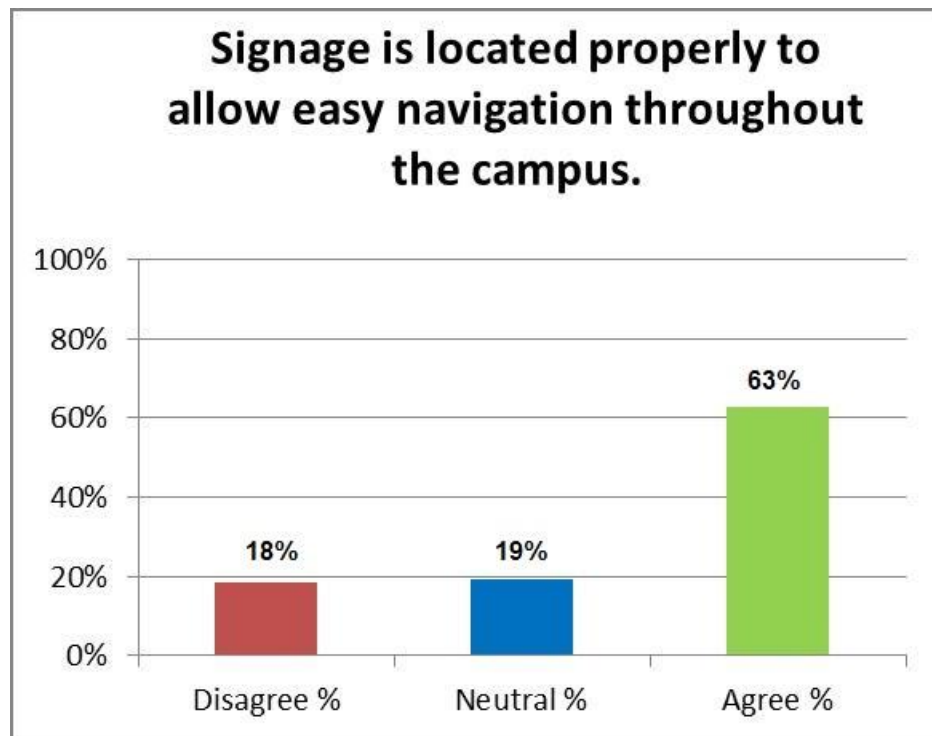


Figure 4-29 Survey results showing signage on campus



Figure 4-30 Signage on east campus



Figure 4-31 Campus map on west campus

4.3.2.18. *There is sufficient greenery throughout the campus landscape.*

Out of the total respondents, 70% of the survey participants agree that the UT Arlington campus has sufficient greenery (Figure 4-32). Presence of vegetation on the campus adds visual complexity and variety in the user's mind and enhances their experience on campus. Passive observation reveals that UT Arlington has sufficient greenery throughout the campus, which creates a healthy environment on campus. However, there are a few areas on the campus such as the outdoor areas of the Engineering Research Building, which needs planting improvements. Introducing a new plant palette to the overall campus might enhance the overall appeal of UT Arlington campus landscape.

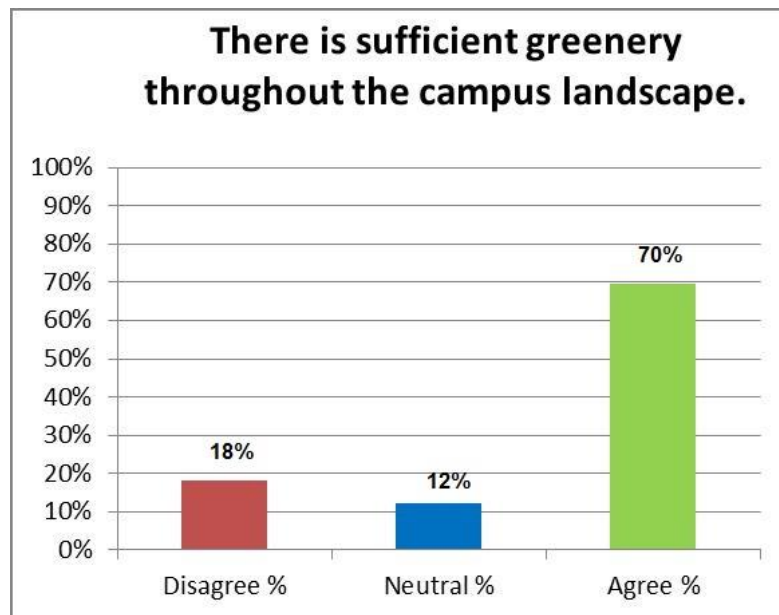


Figure 4-32 Survey results showing greenery on campus

4.3.2.19. *There are a sufficient number of trees throughout the campus landscape.*

About 71% of the survey participants agree that there are sufficient numbers of trees at the UT Arlington campus (Figure 4-33). In a well-composed campus design, trees are major element (Dober, 2000). The UT Arlington campus has plenty of live oaks

all over the campus, and few of the seasonal ornamental trees, which indicates lack of diversity. The quality of trees at UT Arlington is moderate whereas, maintenance seems to be well done. In addition, a few old trees on campus offer plenty of shade and greenery.

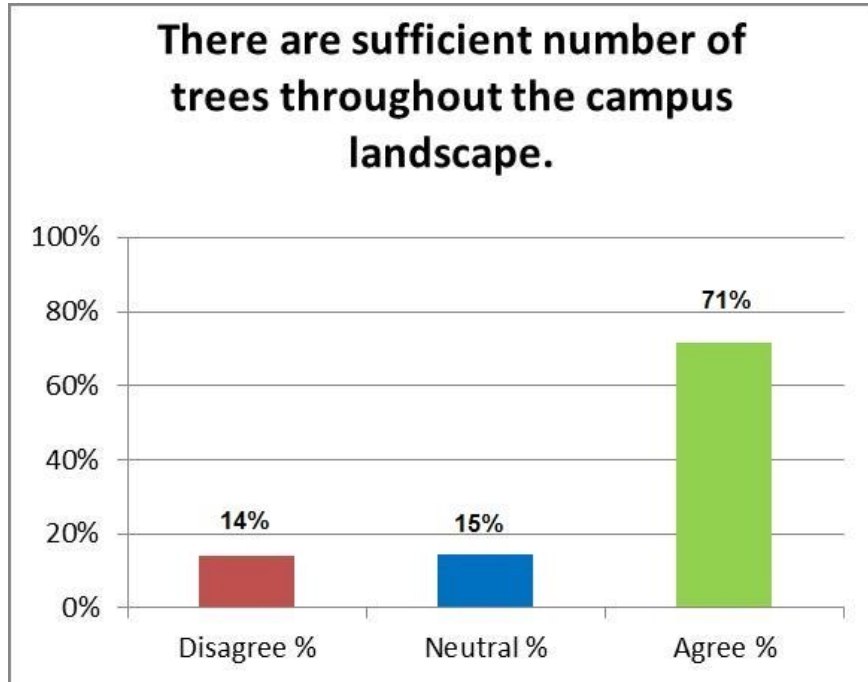


Figure 4-33 Survey results showing number of trees on campus

4.3.2.20. The campus landscape is well-maintained.

About 84% of the survey participants agree that the UT Arlington campus landscape is well-maintained (Figure 4-34). A well-maintained landscape includes ensuring proper irrigation, fertilization, pruning and turf and tree care. Passive observation supports the survey findings that UT Arlington's campus landscape is well maintained with proper irrigation and pruning from time to time.

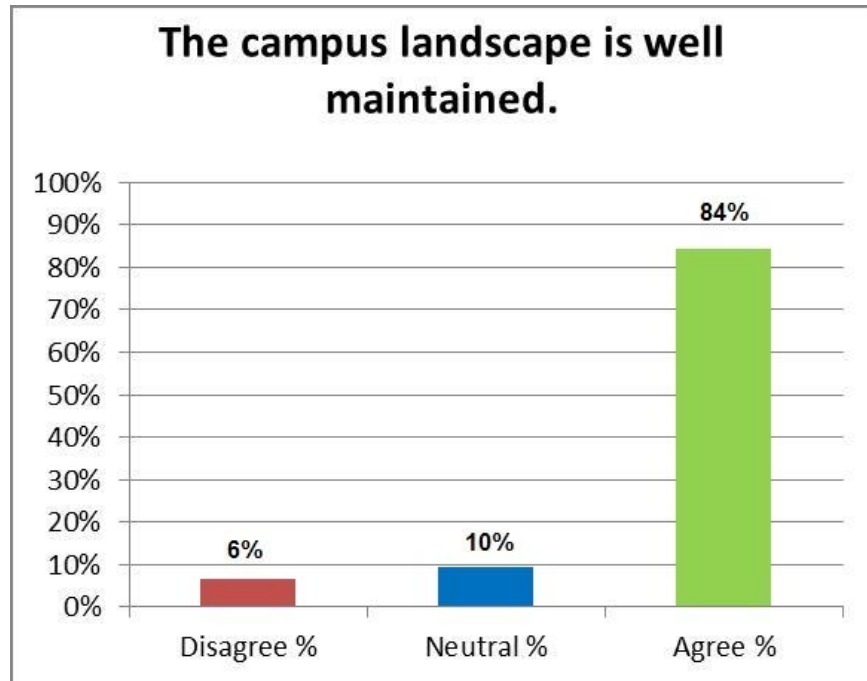


Figure 4.34 Survey results showing campus landscape maintenance

Design Characteristics Findings Summary– Survey Part 2 A

A brief overview of all survey findings for design characteristics are shown in a chart below (Figure 4-35). This chart combines and compares the 20 design characteristics. Pedestrian friendly, greenery, trees, well maintained and user-friendly campus were the topics that received the most votes from users. Well-maintained landscape and pedestrian friendly campus were the top most agreed upon by the survey participants. Whereas, outdoor education was the least agreed upon by the survey participants.

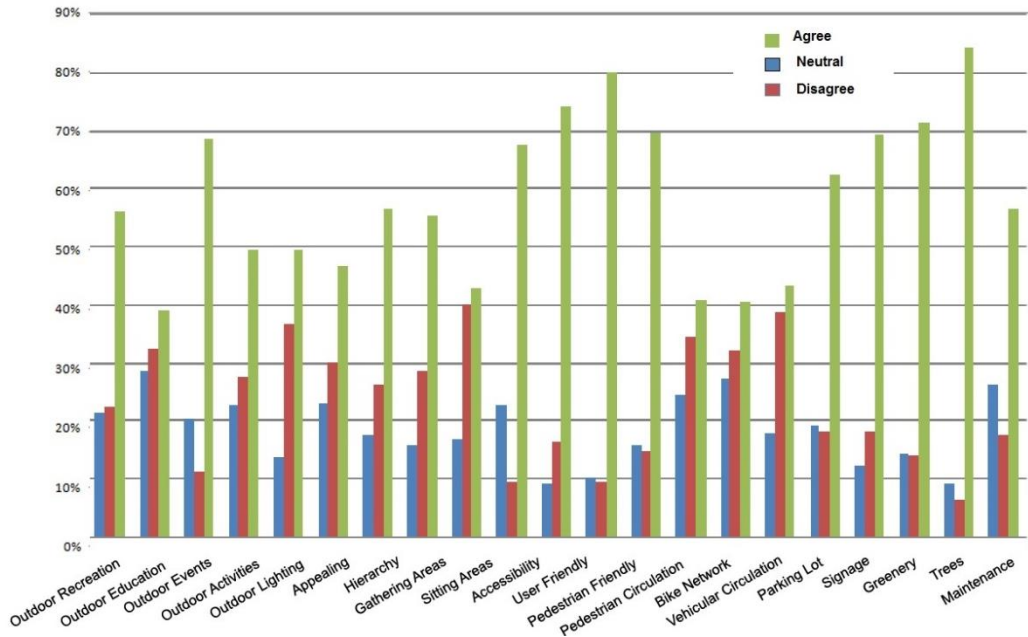


Figure 4-35 Overviews of survey findings for design characteristics

User Experience Findings –Survey Part 2 B

This section compares and analyzes the responses in the survey regarding users’ experiences and observations made by the researcher.

4.3.2.21. *The campus landscape promotes healthy living.*

Around 57% of the survey participants agree that the campus landscape at UT Arlington promotes healthy living (Figure 4-36). UT Arlington has plenty of areas that are not necessarily well designed for outdoor activities. However, UTA is a pedestrian and bike friendly campus which help users to live healthier lives.

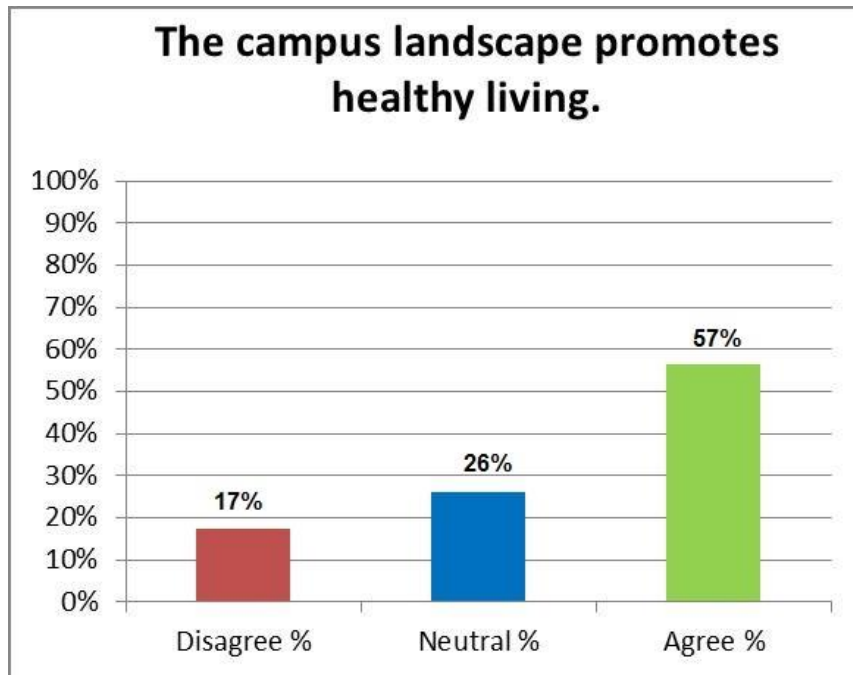


Figure 4-36 Survey results showing healthy living on campus

4.3.2.22. The campus landscape promotes physical activities (jogging, running, sports, etc.).

Out of the total survey, respondents 52% of the survey participants agree and 29% disagree on the campus landscape at UT Arlington promoting physical activities (Figure 4-37). It shows there are not enough designated trails on the campus but users seem to take advantage of the sidewalks around UT Arlington campus to exercise. In addition, many users use open lawn areas for playing outdoor sports on campus (Figure 4-38).

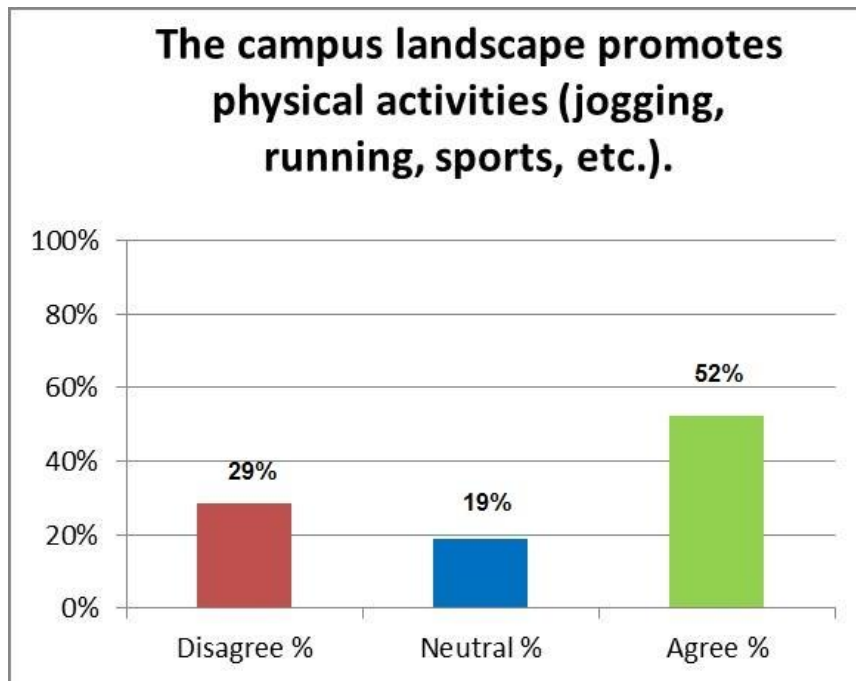


Figure 4-37 Survey results showing physical activities on campus



Figure 4-38 Physical activities on Campus (UTA Website, 2010)

4.3.2.23. The campus landscape improves your quality of life.

About 51% agree that the campus landscape improves their quality of life (Figure 4-39). UT Arlington is a smoke free campus and it encourages outdoor physical

activities, which make a campus environment healthier. However, passive observation reveals that the campus landscape does not improve the users' quality of life on the UT Arlington campus. There are not enough designated areas that foster users' health and comfort on campus. The campus landscape normally enhances the quality of life and the UT Arlington campus landscape may need a better approach towards it.

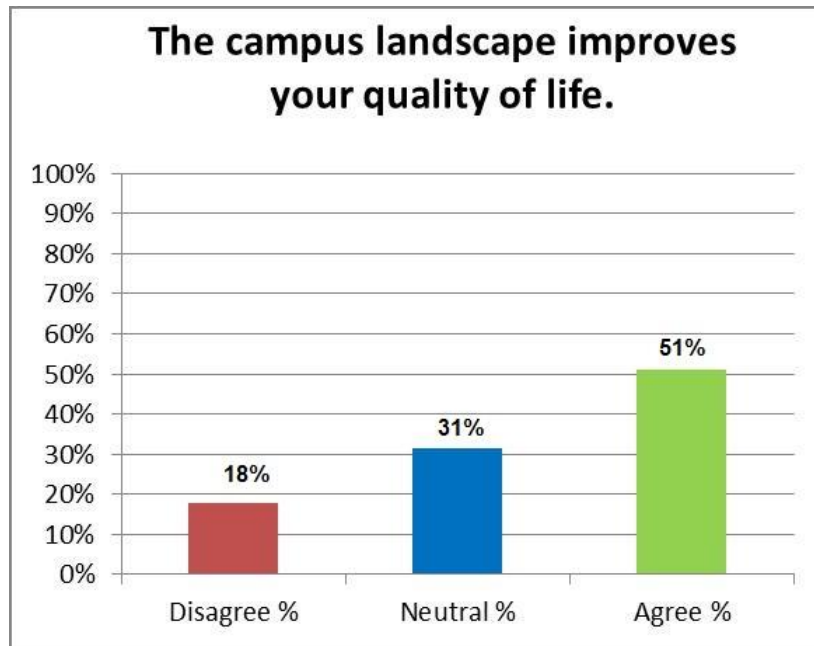


Figure 4-39 Survey results showing quality of life

4.3.2.24. *The campus landscape influenced your decision to attend UTA.*

About 54% of the overall respondents (including employees and visitors) disagree and 21% of the survey participants agree that the campus landscape influenced their decision to attend UTA (Figure 4-40). Detail survey results revealed that 50% of students do not agree the above statement whereas, 23% agreed and 27% are neutral. Faculty and staff survey results show that 72% of them do not agree but 6% agree and 22% are neutral. It was observed that based on their perception of a campus students choose an institution (Griffith, 1994). Ozdil et. al. 2013 found out that 44% of the

students, who took their survey about UT Dallas, agreed with the statement that new campus landscape influenced their decision to apply at the UT Dallas (Ozdil et. al. 2013).

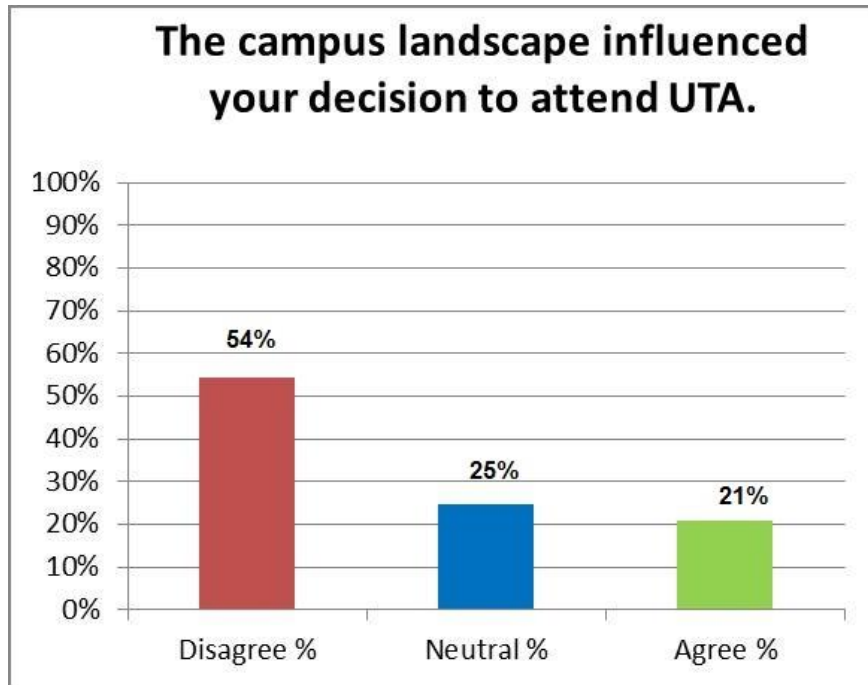


Figure 4-40 Survey results showing users decision to attend UTA

4.3.2.25. The campus landscape promotes safety and security.

Out of all the survey respondents, 48% feel safe and secure on the UT Arlington campus. However, 25% disagree with this, (Figure 4-41). Providing a safe and secure environment for users helps to build a successful campus environment. The UT Arlington campus has various safety and security measures such as safe campus ride services. Campus emergency phone blue boxes are located at various points around the campus to assist users with emergencies (Figure 4-42). That being said, the campus is located in a growing metropolitan region in an urban context. It is observed that campus is easily accessible from all sides of campus with very little fencing and controlled entry points, other than vehicular, which is primarily for parking.

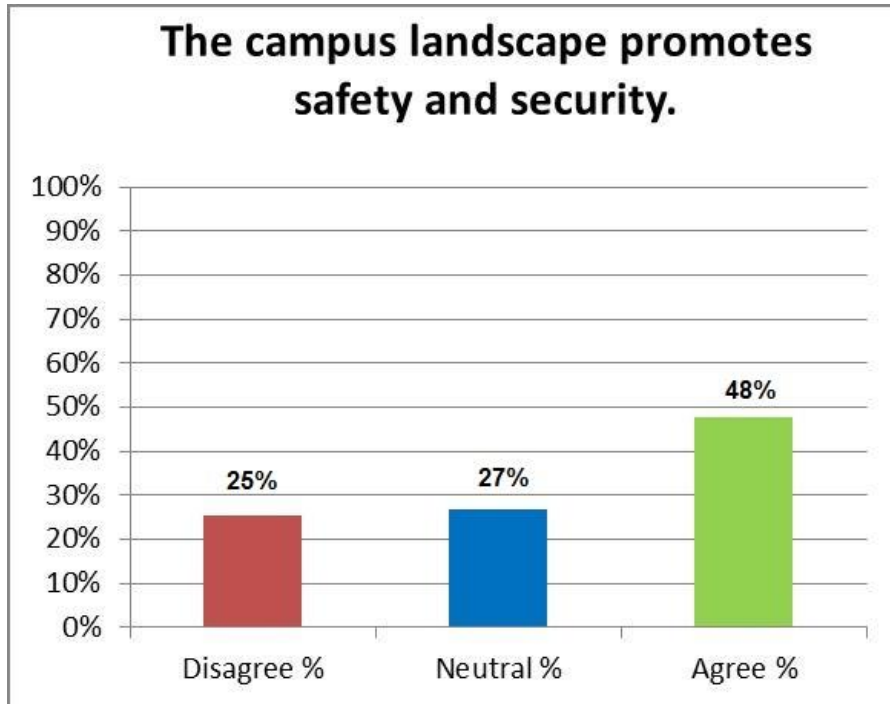


Figure 4-41 Survey results showing safety and security at UTA

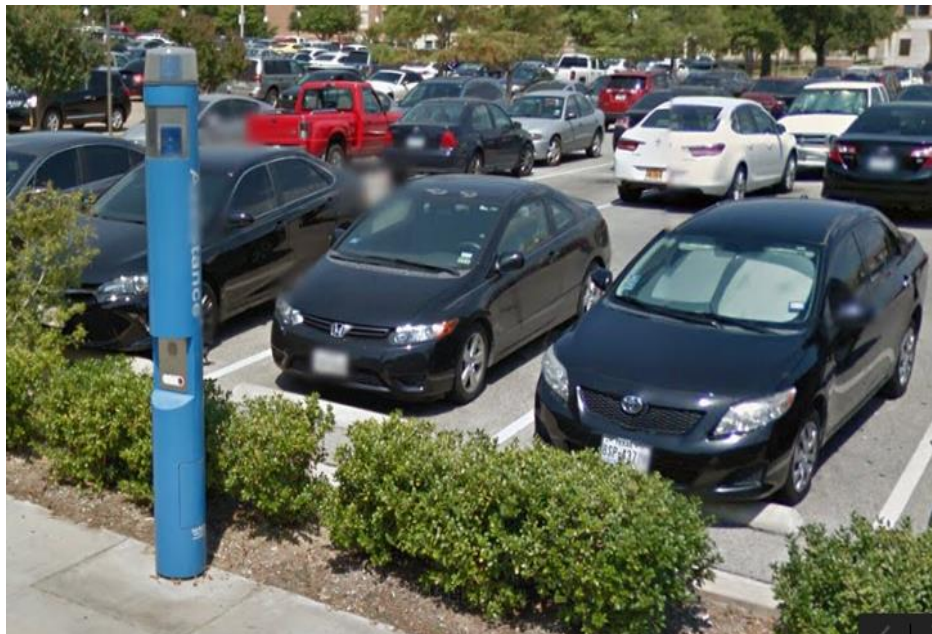


Figure 4-42 Emergency blue boxes on campus for safety and security at UTA

4.3.2.26. *The campus landscape provides a sense of place.*

About 60% survey participants agree that the campus landscape provides a sense of place whereas 20% disagree (Figure 4-43). A sense of place can be defined as one's ability to grasp and appreciate various qualities of places (Relph, 2007). A sense of place is a feeling, which users get while they are on campus, which makes the campus unique for them. This term most likely requires self-interpretation of the respondents. UT Arlington has sense of place at some areas on campus such as the Architecture Courtyard and the Central Library plaza. However, it could be enhanced and improved in the rest of the areas like the entrance plaza of the Maverick Activity Center.

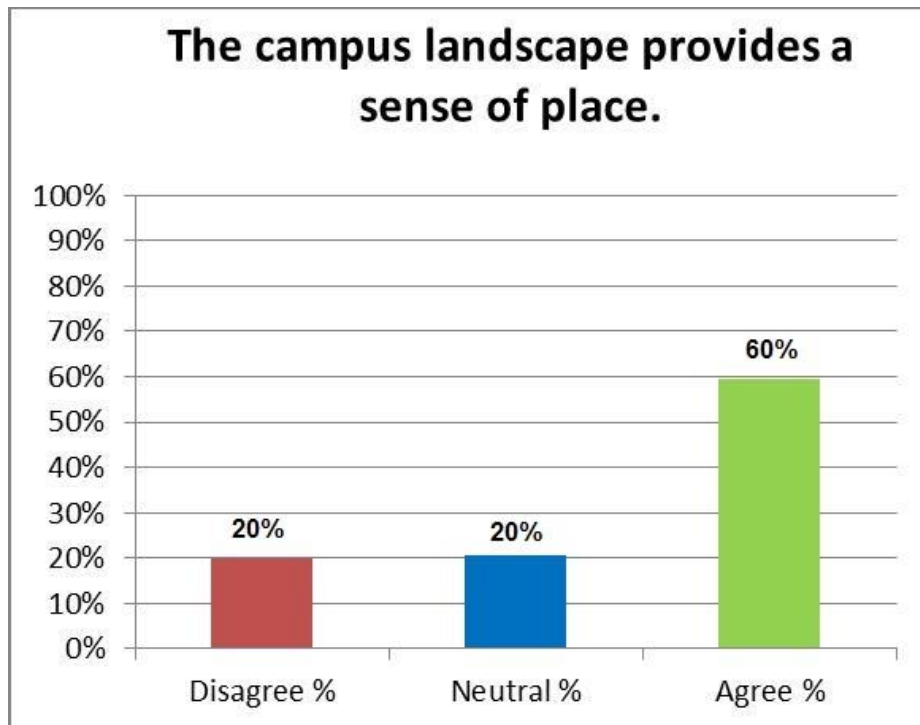


Figure 4-43 Survey results showing sense of place at UTA

4.3.2.27. *The overall campus landscape is aesthetically pleasing.*

About 66% of the survey participants agree that the campus landscape at UT Arlington is aesthetically pleasing (Figure 4-44). UT Arlington campus seems to be aesthetically pleasing in terms of landscaping, the presence of water features and big lawns on campus. Aesthetics is in the eye of the beholder and perceived by the user as to how they experience the campus.

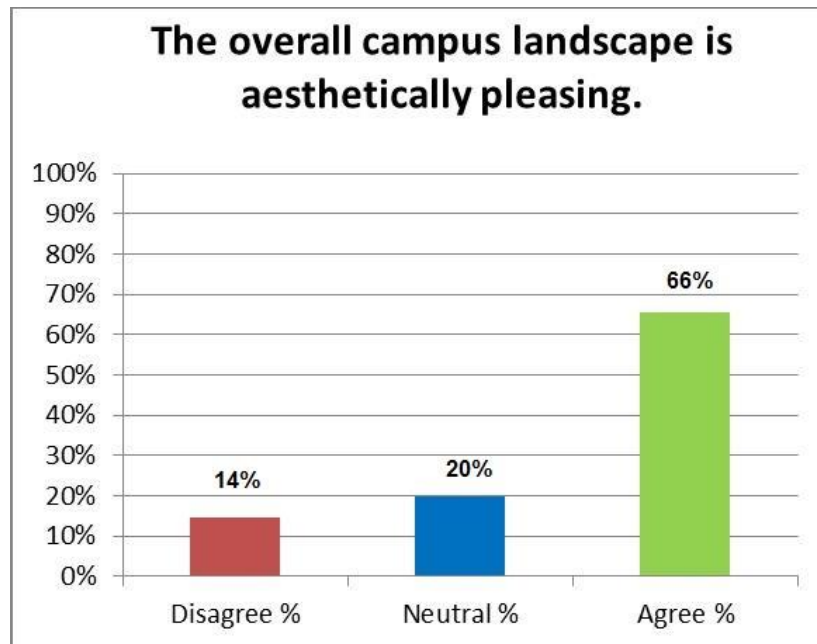


Figure 4-44 Survey results showing aesthetically pleasing landscape at UTA

4.3.2.28. *The campus landscape provides a sense of arrival.*

Literature illustrates that the entry and a sense of arrival is one of the key components of campus landscapes (Dober, 2000). Survey results illustrate that 48% of the survey participants agree and 32% of the participants disagree that the campus landscape at UT Arlington provides a sense of arrival (Figure 4-45). Once a user approaches the campus, they should know that they are entering a campus. According to

physical observation, UTA does not have a clear indication of a sense of arrival in form of gateways or landmarks etc.

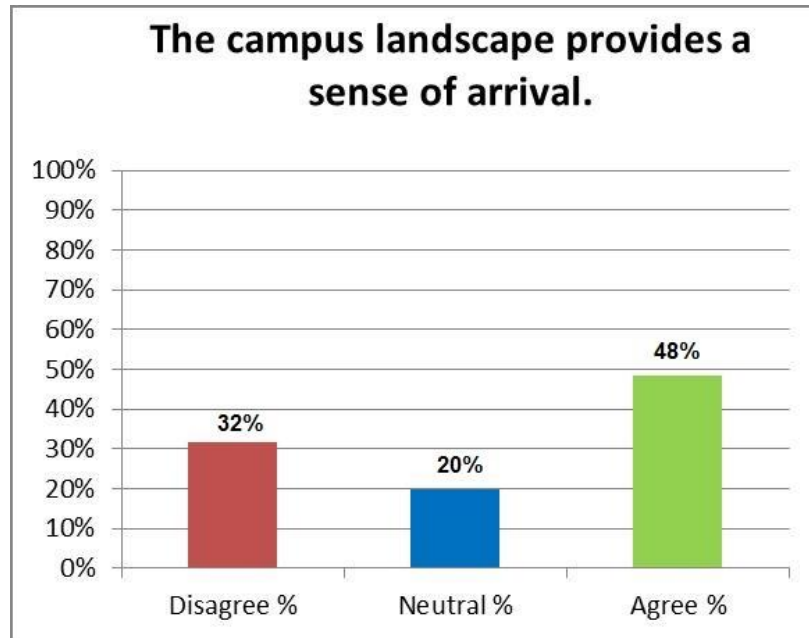


Figure 4-45 Survey results showing sense of arrival at UTA

4.3.2.29. *The campus offers an appealing first impression.*

Campus appeal and first impression are also two of those items largely present in literature (Gains, 1991). 60% of the survey participants agree that the UT Arlington campus offers a good first impression (Figure 4-46). The first impression is often the last impression. Mostly, when users visit the campus, the overall campus environment made a big impression on them. It seemed like UT Arlington offers an appealing but not as strong and long-standing first impression for its users based on the researcher's view.

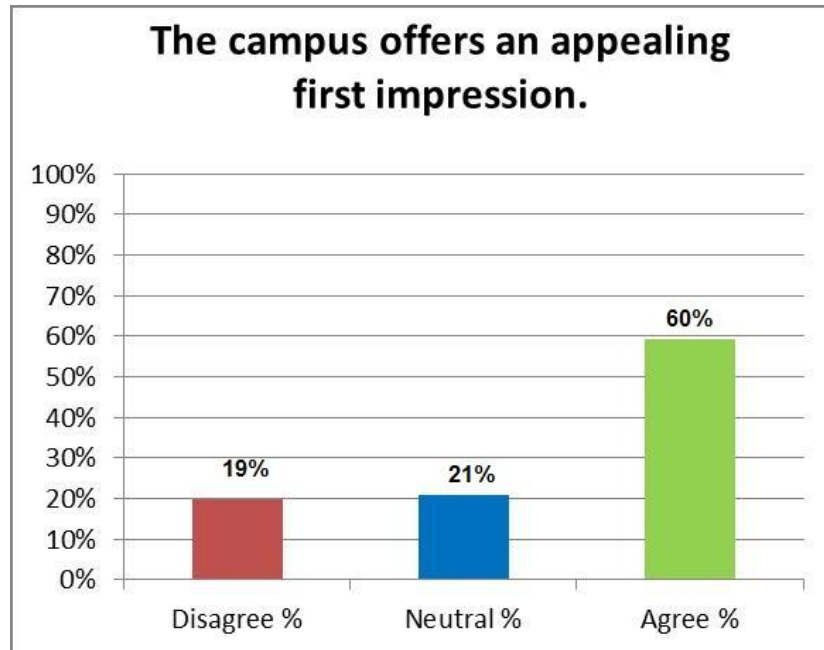


Figure 4-46 Survey results showing appealing first impression at UT Arlington

4.3.2.30. *The campus landscape exposes you to art and artistic activities (sculpture, interactive fountains, outdoor exhibits, etc.).*

About 43% of the survey participants agree with this statement whereas 37% disagree that the campus landscape exposes them to art and artistic activities (Figure 4-47). Public art anchors the whole campus landscape by providing points of interest throughout the campus (Marcus & Francis, 1998). As per the researcher's observation, UT Arlington has minimal public art on campus.

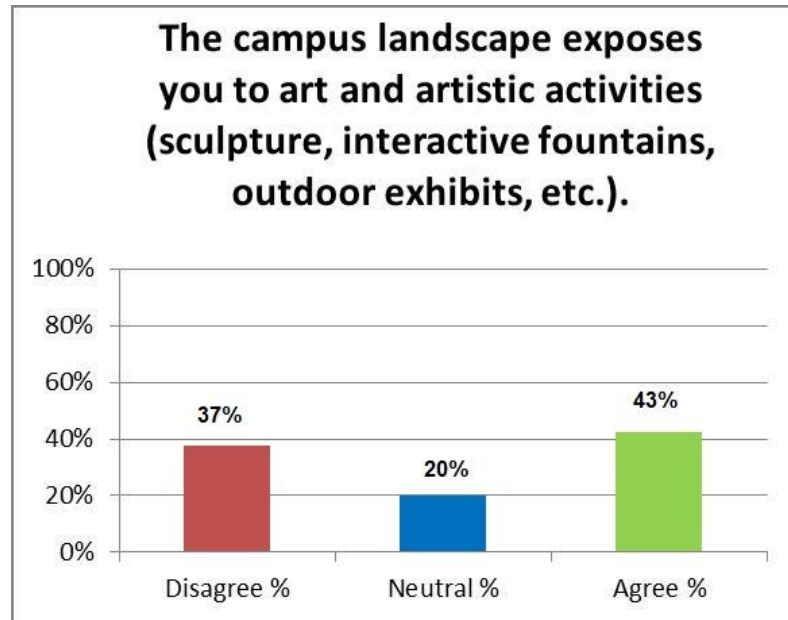


Figure 4-47 Survey results showing art and artistic activities at UTA

4.3.2.31. The campus landscape promotes a sustainable environment.

Survey results illustrate that 54% of the survey participants agree that the campus landscape promotes a sustainable environment (Figure 4-48). UT Arlington is a sustainable campus. The Green at College Park, a designed sustainable site on the UT Arlington campus is an example of this. In addition, multiple sustainable activities like trash recycling, water conservation, composting, etc. are a few of the initiatives by UT Arlington helping to make the campus sustainable. Furthermore, community gardening, green roofs, and storm water management help to make UT Arlington sustainable campus.

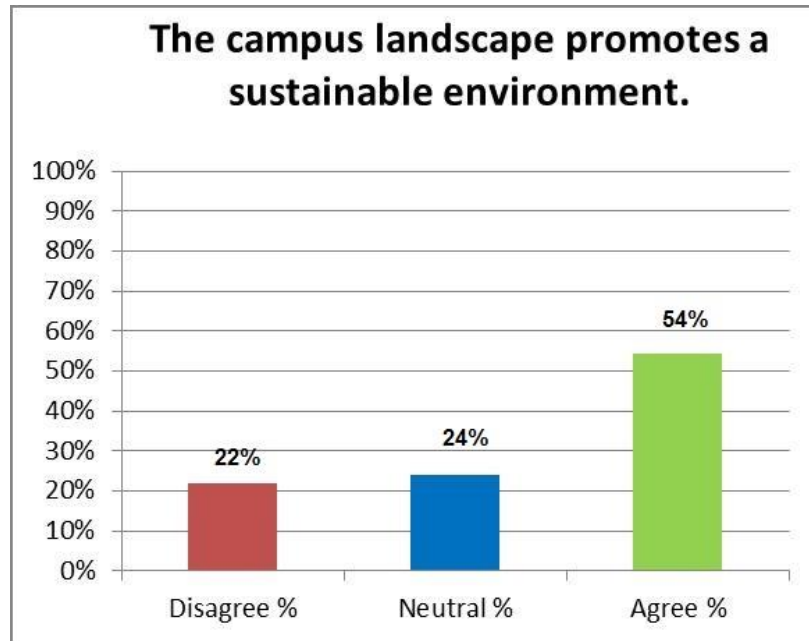


Figure 4-48 Survey results showing sustainable environment at UTA

User Experience Finding Summary –Survey Part 2 B

A brief overview of all survey findings for the user experience are shown in a chart below (Figure 4-49). This chart combines and compares the 11 experiences. Aesthetically pleasing, sense of place, first impression, healthy living and sustainable environment were the topics that received the most votes from users. Aesthetically pleasing and a sense of place were most agreed by the survey participants. Whereas influence on the decision to attend UTA, artistic activities on campus, and sense of arrival were the least agreed upon by the survey participants. The most disagreed topic was the decision to attend UTA.

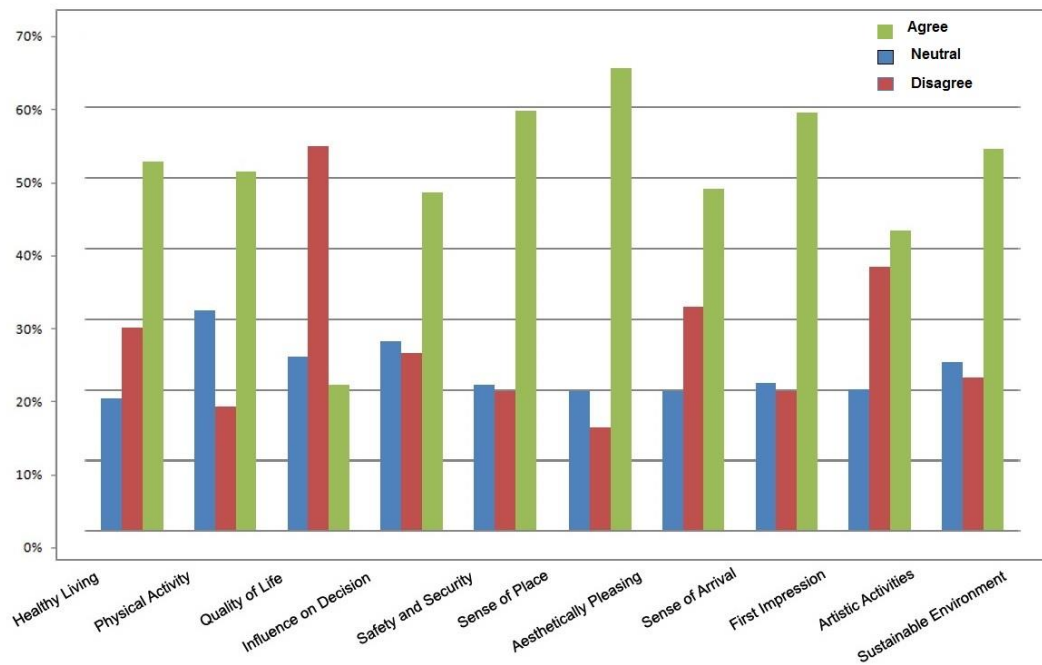


Figure 4-49 Overview of survey findings for user experience

4.3.3 Open-ended Questions –Survey Part 3 and Part 4

Parts 3 and 4 of the survey questionnaire contain five open-ended questions.

The questions with the most common responses are listed below:

1. *Please list your favorite areas on campus and explain why.*

Users mentioned different places at the UT Arlington campus landscape. There were several repetitive responses about users' favorite areas on campus. Hence, the list of users' favorite areas in campus is listed below:

Architecture courtyard on the UTA campus: This area was chosen for the following reasons: for its beautiful fountain, enclosed green area, outdoor meeting areas and shaded areas. In addition, this area is aesthetically pleasing, well-maintained, well-proportionate and well designed. Users' feel comfortable and relaxed in this area.



Figure 4-50 Architecture courtyard (Source: Sanmitra Saudatti, 2016)

Plaza in front of the Central Library, UTA campus: The plaza's open space, sitting areas, picnic tables, shaded trees, and the presence of people and activities creates an atmosphere, which attracts people. The presence of a central quadrangle creates a central open space for users to relax study and socialize.



Figure 4-51 Plaza in front of a Central Library (Source: Sanmitra Saudatti, 2016)

Area around Maverick Activity Center, UTA campus: Remarkable for its outdoor recreational areas, where users can relax study and do outdoor activities, it promotes healthy living and fitness. The presence of seating and green areas nearby also makes it one of the favorite places of users on campus. As per passive observation, this was not intentionally designed as single project but it is one of the largest traffic free quads of campus, which receive a significant amount of pedestrian traffic.



Figure 4-52 Area around Maverick Activity Center

Green at College Park: With sustainable and low impact design, appealing landscape and lighting throughout the area, it also has open areas, which encourage outdoor activities. The Green at College Park was opened in 2011, and is designed by Schrickel, Rollins and Associates, Inc. in collaboration with the American Society of Landscape Architects and Lady Bird Johnson Center and a few other organizations (sradesign, 2016).



Figure 4.53 Green at College Park

Water Features by the Chemistry Building on the UTA campus: Participants did not provide any particular reason but having a semi-private pedestrian-friendly scale with a water feature seems to be the attraction for this particular campus location.



Figure 4.-54 Water feature by Chemistry building

2. *Least favorite areas on campus.*

College Park Center – According to 25% of the survey respondents, it should be more appealing to students to hang out rather than just to attend graduation ceremonies and the speaker series. It is a good place for outdoor activities.



Figure 4-55 College Park Center on campus

The Engineering Research Building and surrounding area- About 40% of the respondents mentioned the Engineering Research Building for its unused open space with fewer trees. Passive observation supports the survey findings. There is no shade and no focal point.



Figure 4-56 Area around Engineering Research Building (Source: Sanmitra Saudatti, 2016)

The area in front of the MAC – About 25% of the participants claim that it could be well designed, but currently there is too much concrete in front of the MAC. Passive observation reveals that users do not spend much time outside the MAC. There is no shade, no interesting landscaping nor water features for them to enjoy and make them want to stay more.



Figure 4-57 Areas in front of a Maverick Activity Center (Source: Sanmitra Saudatti,2016)

The parking lots- About 45% of the respondents mentioned this area. Survey participants were not happy with parking lots because some are not shaded and lack the presence of green islands and trees. Passive observation shows that users sometime struggle to find a parking spot and the absence of trees make is difficult for users in summer.

Bridges over Cooper – Around 38% of the survey respondents mentioned this place. According to the participants, the walkways over Cooper Street are not appealing. They often feel secluded and unpleasant to walk over the bridges (Figure 4-58)



Figure 4-58 Pedestrian bridge over cooper street (Source: Sanmitra Saudatti, 2016)

3. *Have you seen something on another campus landscape that you wish was at the UT Arlington campus?*

The majority of the respondents highlighted several attributes in regards to campuses that they have observed and find appealing. The following section outlines these features based on the frequency of their appearance in survey findings .

Campus quad – Participants seem to like quad or outdoor gathering spaces that symbolize the center of social interaction for campus,

Main entryway to the campus – Presence of an entryway to the campus makes users feel the sense of arrival in the campus.

Outdoor sitting- According to the participants, outdoor sitting opportunities create a more user-friendly environment for users.

Gathering areas – Outdoor areas where students would be able to study, interact, or conduct other activities on a shaded, grassy landscape.

Landmark – Having a landmark in the form of an iconic building, a wall or a sculpture that symbolizes the UTA campus.

Green areas all over the campus - Participants have suggested adding more green spaces and more trees across the campus.

4. *One thing that you could add to or change about the UT Arlington campus landscape.*

Survey respondents answered a variety of things that they would like to add or changes on the UT Arlington campus that they think are important. The following section outlines those features:

Centralized park – Converting the area in front of the main library into a centralized park where everyone can gather.

Connecting the east and west side of the campus – Over Cooper Street, connecting the whole campus in a way that it will not look so disconnected.

Pedestrian friendly walkways – Creating shaded walkways for users.

Better lighting – Providing better lighting throughout the campus would make the campus safer and more accessible to all.

Signage and maps – Signage and maps to help existing users and visitors around the campus.

Semi covered sitting and walking areas – Protection from heat.

Parking lots – Adding more parking lots.

5. *Please use the space below for any other comments you wish to make that may not be covered in this survey.*

Boundary of a campus – According to some participants, the campus bleeds into the surrounding neighborhoods. There is no strong definition of the campus boundary.

Visual quality of trees in campus – As per the participants, one of the most negative visual aspects of the campus is the historic overuse of live oaks, which work great in classical campus settings in the deeper south (Rice and LSU for example). Replacing the

live oaks over time with strong plantings of tall deciduous canopy trees with seasonal color, complemented with flowering ornamental trees to highlight seasonal changes, would greatly improve the campus image.

Paving – Paving often affects travel choice. Having the same kind of paving throughout the campus would tie the whole campus together.

4.4 Summary

This chapter discusses the analysis and findings from the research methods. The survey structure is introduced first and discussed by category. This chapter starts by introducing profile information of the survey participants. In addition, the Likert scale questions and open-ended questions are also discussed. As part of the data triangulation strategy, survey findings are accompanied with passive observation findings as well as data from secondary sources and literature. Bar charts and, photographs were used to elaborate on the users' perception of the UT Arlington campus landscape. Each part of the survey is discussed individually, and findings are noted. The most common responses for open-ended questions are listed. Chapter 5 concludes from these research findings.

CHAPTER 5

CONCLUSION

5.1 Introduction

This chapter summarizes the findings and reveals the variables that influence users' perceptions at UT Arlington as well as demonstrating the importance of this research to landscape designers and urban planners. In addition, this chapter introduces the topics that arose during the research process, which can be pursued for future research.

5.2 Research Summary

The purpose of the study was to assess the perceptions of users on the UT Arlington campus landscape. This research raised three major questions:

1. What landscape design characteristics affect the users' perceptions of campus landscapes at UT Arlington?
2. How do users' perceptions of campus landscapes affect the users' overall experience at UT Arlington?
3. What are the lessons learned from assessing users' perceptions of campus landscapes from UT Arlington?

The research methodology used for this study includes comprehensive literature review, online survey and passive observations. A design matrix is created from the literature and further used to create survey questions and to record passive observation. To determine the conclusion of this research, gathered data was triangulated using the data triangulation method. The data collected from the UT Arlington campus are presented in the following section.

5.2.1 *What landscape design characteristics affect users' perceptions of campus landscapes at UT Arlington?*

This research question asks about the design characteristics of the UT Arlington campus landscape that have affected users' perceptions. From the analysis of survey findings and observations, there are four types of design characteristics at the UT Arlington campus landscape:

Gathering areas – The UT Arlington campus has multiple gathering areas that help to enhance the overall experience on campus. By providing such areas, users get a platform to meet study and socialize. UT Arlington has several outdoor areas but the majority of them seem to be concentrated around the main library. Gathering areas are not necessarily evenly distributed throughout the campus.

Water features - There are a number of water features all over the UT Arlington campus, which produces a stress-reducing effect. Also, the presence of water features screens the outer traffic noise and creates a pleasant ambiance in and around it (Marcus & Francis, 1998). Water features also have a calming and soothing effect on the users' mind. The presence of water feature on the campus landscape creates focal points.

Pedestrian walks – A well-designed pedestrian walkway structure is an essential part of a successful campus. UT Arlington has well connected, direct and continuous walkways, which cover most of the campus buildings, landscapes areas, etc. In addition, creating a more pedestrian-friendly environment by adding shade trees alongside the walkways is important.

Shaded sitting areas – The UT Arlington campus landscape has different types of sitting areas. Several picnic benches are placed at regular intervals in campus. Users' have multiple options for sitting, depending upon their choice. Many people choose to sit in the shaded areas on the lawn. Some people enjoy studying while some of them enjoy just

sitting or meeting and talking to each other. There are also secluded areas provided on campus, which gives the opportunity to be all alone for campus users. Adding more shaded sitting areas might be a good addition to the existing sitting areas.

Vegetation – Presence of vegetation or greenery positively affects the users' perception of campus. Greenery makes the campus more aesthetically and visually pleasing. It also enhances users overall experience on campus. Users' often feel more positive when they see greenery (Ulrich, 1981).

5.2.2 How do users' perceptions of campus landscapes affect users' overall experience at UT Arlington?

After the literature review, survey data and passive observation, design characteristics are discussed and findings are noted. The research shows that the noted design characteristics have affected the perceptions of users of the UT Arlington campus landscape. Providing public spaces, which bring all the users' together for different activities and outdoor events, is the most common characteristic of a campus landscape. According to the Project for Public Spaces (2015)" On any campus, there should be at least ten interesting, well used public places that attract all kinds of people." It helps to create a sense of community on campus and bridges the gap between communities (PPS, 2015). The research further shows that, the presence of outdoor sitting areas, presence of water features big open lawns, pedestrian friendly walkways and bikeways, and good circulation enhances the users' experience on campus. Whereas, traffic noise, and disconnection between the east and west campus negatively affected users' perceptions of the UT Arlington campus. Survey respondents were not very satisfied with the distribution of parking lots and lighting in campus at night.

5.2.3 *What are the lessons learned from assessing users' perceptions of campus landscapes from UT Arlington?*

From the survey findings and passive observation data, UT Arlington has a majority of the characteristics that are essential for a successful campus. Five lessons learned from the assessment of users' perception are listed below:

Campus quad – Campus quad is a dominant feature in a majority of the well-recognized universities and institutions since historical times. It serves as the largest open space on campus for gatherings and outdoor events. Typically, campus quads are highly landscaped areas on campus, which tie the whole campus together.

Gateways - A gateway to the campus provides a sense of arrival on campus. As Marcus & Francs states in their book *Peoples Places*,” gateways are institutional symbols and physical statements of hello and goodbye” (Marcus & Francs, 1998). It gives the first impression of the campus and provides a formal entrance to the campus.

Sitting – William H. Whyte states in his book, *The Social Life of Small Urban Spaces*, “people sit where there are places to sit” (Whyte, 1980). In walkable public places, the presence of adequate sitting areas is very essential (Scully and Schmitz, 2005). Sitting has always been an important element in campus landscape design. Providing multiple opportunities for sitting where one sits and enjoys the campus landscape also helps to activate the space.

Vegetation – Presence of vegetation on campus adds visual complexity and variety in the users' minds and enhances their experience in campus. In American landscape architect F. A. Bartlett's view, the trees are, “instruments of physical betterment, mental relief, and spiritual inspiration” (Bartleett, 1930). In a well-composed campus design, trees are major elements (Dober, 2000).

Public art - Public art anchors the whole campus landscape by providing points of interests throughout the campus. Art in public places creates a sense of place. The presence of public art in campus landscape encourages people to stop by, sit and strike up a conversation (Marcus & Francis, 1998).

Sustainability – It is becoming an important new factor for the contemporary campus landscapes. UT Arlington is making many initiatives to create a sustainable campus ranging from LEED certified building on campus, UTA recycling and composting program, water conservation and managing storm water impacts. These type of programs encourages future generation to be more environmentally responsible.

5.3 Suggestions For The Campus Landscape at UT Arlington

According to the survey results, passive observation findings as well as the review of available secondary data, here are some suggestions for the UT Arlington campus landscapes. The first suggestion is connecting the east and west campus in a way that the whole campus looks as one and not divided into two parts. Creating a deck garden over Cooper Street could be one of the options.

The campus seems to bleed into the surrounding neighborhoods. There is no definition of the campus boundary. Adding a campus entranceway might help in this case. In addition, signage and way finding maps at regular intervals all over the campus landscape could be helpful.

As per survey respondents along with passive observation, the west side of the campus in comparison with the east campus is not very active. Creating a plaza where people can sit, meet and gather would activate the west side of a campus. In addition, an outdoor fitness area outside of the Maverick Activity Center would be a great addition to the existing recreational center.

Rather than scattered activities around campus, combining two or three activities, which are related to each other often, creates a more successful place (Project & Spaces, 2015). Combining a courtyard at Davis Hall with an outdoor cafeteria on the first floor and an outdoor exhibition area would create a more successful place than what is there now.

Creating interesting areas to walk and sit at the UT Arlington campus would make people more excited about the campus and its landscape. This can be achieved by adding creative plantings, artwork or just by an artistic paving design. Providing a point of interest at the end of a long walkway maintains the curiosity.

The size and scale of the UT Arlington campus is pedestrian friendly, which opens up opportunities for a provision of canopies and planters on walkways to enhance the pedestrian walking experience.

The Green at College Park is a big open space located at the boundary of the campus. Many users of the campus are unaware of its existence. Even though it is a highly designed landscape space, it is not used as much as it should. Adding different activities and creating more shaded sitting opportunities would help in activating this space.

The parking lots on campus are insufficient for the ever-growing student population. There is a huge need of designed parking lots inside the campus. In addition, replacing existing landscape design with interesting seasonal trees and plantings would hugely improve the overall look of the campus.

5.4 Value of the Study for Landscape Architects and Planners

Landscape Architecture is an artistic yet scientific principle, which applies to the research, planning, and design of both the natural and built environments that result in useful, aesthetic, safe and enjoyable purposes (Rogers, 1997).

College campus design requires all three disciplines (Landscape Architecture, Architecture and Planning) working together to build a successful campus. This study elaborates design characteristics of a campus from an end users' point of view that are crucial when designing a successful campus. The most important factors that affect the perception of users are having choices for sitting and meeting places, water features and vegetation. Landscape architecture in combination with urban planners and architects should focus on incorporating these elements to create an active campus where users' will feel a sense of belonging and a sense of community.

5.5 Future Research Opportunities

This research focuses on design characteristics and users' perceptions of the UT Arlington campus landscapes. To enhance future research related to campus landscapes the following research topics are suggested:

- Study the social, environmental, and/or economic factors affecting users' perceptions of campus landscapes besides the design characteristics.
- It would have been beneficial to include perceptions of campus designers and landscape architects to attain a better understanding of campus designing from a designer's perspective.
- Research about improving the connection between design characteristics and social interaction on the UTA campus landscape.
- This type of research can be expanded to multiple campuses to collect baseline information about more general knowledge about the status of college campuses across US.

5.6 Summary

This chapter as well as this thesis concludes with an overall evaluation of the data about users' perceptions of campus landscapes on the UT Arlington campus.

Furthermore, it discusses the value of this study to landscape architecture and planning which was gained through the literature review, survey findings and passive observations. This chapter and this thesis end with providing recommendations for future research.

Appendix A
Survey Questionnaire Sample Pages

Dear Participants,

My name is Gloria Rumao and I am a graduate student at the Program in Landscape Architecture at The University of Texas at Arlington. I am conducting research for my Master's thesis titled: **Assessing Users' Perceptions of Campus Landscapes: Learning from The University of Texas at Arlington.**

I would like to request your participation in my thesis research by completing and/or sharing a survey designed for the visitors and/or users of The University of Texas at Arlington campus. You are being selected because you have used, have knowledge of, have visited, live or work at The University of Texas at Arlington. The primary goal of this research study is to assess the user's perception of The University of Texas at Arlington campus landscapes.

Participation in this study is voluntary and your identity is kept confidential. Your name will not be used and identified with your survey. Before agreeing to participate you will be provided with an informed Consent Form to approve your participation. The survey takes approximately 15-20 minutes to complete. We are looking forward for your participation. The survey can be provided in hard or digital copy by requesting from (Gloria.rumao@mavs.uta.edu) or it can simply be reached from and filled: (https://qtrial2015q4az1.az1.qualtrics.com/SE/?SID=SV_0SBCKlLjnEtybC5)

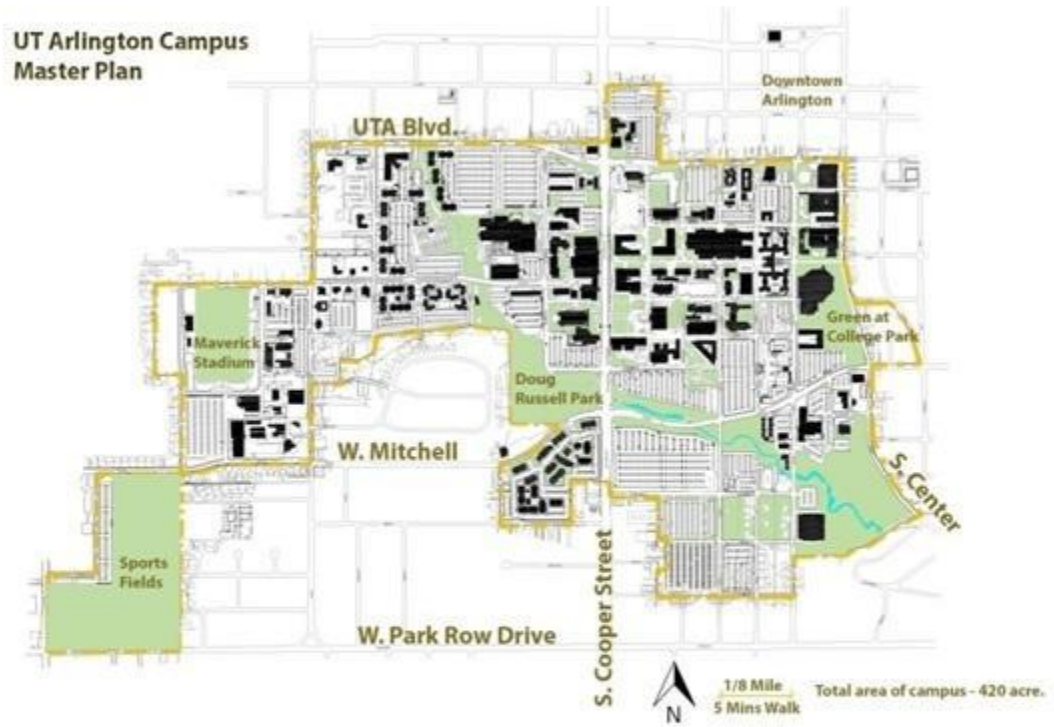
If you have any questions or comments about this study, we would be happy to talk with you.

Thank you very much for your consideration. Your time, support, and participation will be an invaluable part of my research and greatly appreciated.

Sincerely,

Gloria Rumao.
Graduate Student
Program in Landscape Architecture
College of Architecture, Planning, and Public Affairs
Phone: 331-250-1987
Email: Gloria.rumao@mavs.uta.edu

Survey Questions:



Part 1: Profile Questions
Please check all that apply

Q1 How would you primarily define yourself?

- Undergraduate student (Freshman)
- (Sophomore)
- (Junior)
- (Senior)
- Graduate student
- Faculty
- Staff
- Visitor
- Other (Please specify) _____

Q2 Do you live on campus?

- Yes
- No

Q3 How do you typically commute to the UT Arlington campus?

- By Foot
- Car
- Taxi
- Bicycle
- Public transportation
- Other (Please specify) _____

Q4 What is your primary reason for going to the UT Arlington campus?

- Education
- Work
- Visitor
- Other (Please specify) _____

Q5 How often do you go to the UT Arlington campus?

- First time
- Daily
- Once in a week
- Once in a month
- Multiple times in a week
- Other (Please specify) _____

Part 2: Likert Scale Questions To what extent do you agree with the following?
 Part 2 A (Design elements):

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Not Applicable
1. The campus landscape encourages outdoor recreation.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. The campus landscape encourages outdoor education.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. The campus landscape accommodates scheduled/organized outdoor events.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. The campus landscape accommodates evening and/or night time outdoor activities.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. There is sufficient lighting provided throughout the UT Arlington campus.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. Buildings at the UT Arlington campus are appealing.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7. Buildings at the UT Arlington campus are well-distributed and create a good hierarchy of outdoor spaces.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8. There are sufficient outdoor gathering spaces on campus to meet, study, and socialize.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9. The campus landscape has enough sitting	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

areas.						
10. The campus is accessible to all (referring to people covered by the American Disability Act - ADA)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
11. The size of the UT Arlington campus is user friendly.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
12. The campus landscape is pedestrian friendly.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
13. This campus has an efficient pedestrian circulation network.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
14. This campus has an efficient bicycle circulation network and facilities (designed bike-ways, signs, bike lockers, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
15. This campus has an efficient vehicular circulation network.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
16. Parking lots are conveniently distributed throughout the campus.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
17. Signage is located properly to allow easy navigation throughout the campus.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
18. There is sufficient greenery throughout the campus landscape.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
19. There are sufficient number of	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

trees throughout the campus landscape.						
20. The campus landscape is well-maintained.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Part 2 B (Experience):

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Not Applicable
21. The campus offers an appealing first impression.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
22. The campus landscape provides a sense of arrival.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
23. The overall campus landscape is aesthetically pleasing.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
24. The campus landscape provides a sense of place.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
25. The campus landscape promotes healthy living.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
26. The campus landscape promotes physical activities (jogging, running,	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

sports, etc.).						
27. The campus landscape improves your quality of life.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
28. The campus landscape influenced your decision to attend UTA.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
29. The campus landscape exposes you to art and artistic activities (sculpture, interactive fountains, outdoor exhibits, etc.).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
30. The campus landscape promotes safety and security.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
31. The campus landscape promotes a sustainable environment.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Part 3: Open ended questions

Q1 Please list your favorite areas on campus and explain why.

Q2 Please list your least favorite areas on campus and explain why.

Q3 Have you seen something on another campus landscape that you wish was at the UT Arlington campus? Please list below.

Q4 If there is one thing that you could add to or change about the UT Arlington campus landscape, what would it be?

Part 4:

Q1 Please use the space below for any other comments you wish to make that may not be covered in this survey.

Appendix B
IRB Approval Letter



**Institutional Review Board
Notification of Exemption**

February 15, 2016

Gloria Simon Rumao
Dr. Taner R. Ozdil
Architecture
Box 19108

Protocol Number: 2016-0236

Protocol Title: *ASSESSING USERS' PERCEPTIONS OF CAMPUS LANDSCAPES: LEARNING FROM THE UNIVERSITY OF TEXAS AT ARLINGTON*

EXEMPTION DETERMINATION

The UT Arlington Institutional Review Board (IRB) Chair, or designee, has reviewed the above referenced study and found that it qualified for exemption under the federal guidelines for the protection of human subjects as referenced at Title 45CFR Part 46.101(b)(2).

- (2) Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures or observation of public behavior, unless:(i) information obtained is recorded in such a manner that human subjects can be identified, either directly or through identifiers linked to the subject; and (ii) any disclosure of the human subjects' responses outside the research could reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects' financial standing, employability, or reputation.

You are therefore authorized to begin the research as of **February 15, 2016**.

Pursuant to Title 45 CFR 46.103(b)(4)(iii), investigators are required to, "promptly report to the IRB any proposed changes in the research activity, and to ensure that such changes in approved research, during the period for which IRB approval has already been given, are **not initiated without prior IRB review and approval** except when necessary to eliminate apparent immediate hazards to the subject." All proposed changes to the research must be submitted via the electronic submission system prior to implementation. Please also be advised that as the principal investigator, you are required to report local adverse (unanticipated) events to the Office of Research Administration; Regulatory Services within 24 hours of the occurrence or upon acknowledgement of the occurrence. All investigators and key personnel identified in the protocol must have documented Human Subject Protection (HSP) Training on file with this office. Completion certificates are valid for 2 years from completion date.

The UT Arlington Office of Research Administration; Regulatory Services appreciates your continuing commitment to the protection of human research subjects. Should you have questions or require further assistance, please contact Regulatory Services at regulatoryservices@uta.edu or 817-272-2105.

Appendix C
Informed Consent Document

UT Arlington
Informed Consent Document

PRINCIPAL INVESTIGATOR

Gloria Rumao
Program in Landscape Architecture
Email: gloria.rumao@mavs.uta.edu
Phone: 331.250.1987

FACULTY ADVISOR

Dr. Taner R. Ozdil
Program in Landscape Architecture
College of Architecture, Planning, and Public Affairs
Email: tozdil@uta.edu
Phone: 817.272.5089

TITLE OF PROJECT

Assessing user's perceptions of campus landscapes: Learning from the University of Texas at Arlington, TX.

INTRODUCTION

You are being asked to participate in a research study about your perceptions of the campus landscapes at the University of Texas at Arlington (UT Arlington). Your participation is voluntary. You are being selected because you have used, have knowledge of, have visited, live or work at the University of Texas at Arlington campus. Participation is in the form of survey questionnaire. Refusal to participate or discontinuing your participation at any time will involve no penalty or loss of benefits to which you are otherwise entitled. Please ask questions if there is anything you do not understand. This research will be compiled into a thesis format and is the final step towards earning my degree at the University of Texas at Arlington. Thank you so much for your time and consideration.

PURPOSE

The purpose of this research study is to assess users' perceptions of campus landscapes. Specifically this research focuses on the University of Texas at Arlington campus landscape and draw lessons to inform future landscape architecture practice. In order to understand the users' perceptions of campus landscapes at the University of Texas at Arlington, quantitative research is proposed for data collection in this study. Users' includes students, staff and faculty of UT Arlington.

DURATION

IRB Approval Date:

FEB 15 2016

1

UT Arlington Informed Consent Document

Participation in this study will last approximately 15-20 minutes.

NUMBER OF PARTICIPANTS

The number of anticipated participants in this research study is 1000 adults.

PROCEDURES

The procedures, which will involve you as a research participant, include:

1. You will read and sign the UT Arlington informed and consent document.
2. Fill the survey online or offline.

POSSIBLE BENEFITS

This research can help landscape architects and other design professionals in their future design projects to develop more user friendly campus. Indirectly, it will benefit the users' at UT Arlington.

POSSIBLE RISKS/DISCOMFORTS

Since this survey takes place at UT Arlington campus, there are no perceived risks or discomforts for participating in this research study. Should you experience any discomfort please inform the researcher, you have the right to quit any study procedures at any time at no consequence.

COMPENSATION

There will be no compensation for participation in this survey.

ALTERNATIVE PROCEDURES

There are no alternative procedures offered for this study. However, you can elect not to participate in the study or quit at any time at no consequence.

VOLUNTARY PARTICIPATION

Participation in this research study is voluntary. You have the right to decline participation in any or all study procedures or quit at any time at no consequence.

CONFIDENTIALITY

Every attempt will be made to see that your study results are kept confidential. A copy of this signed consent form and all data collected including transcriptions/tapes if applicable from this study will be stored in the office of Dr. Taner R. Ozdil's office (room 417) for at least three (3) years after the end of this research. The results of this study may be published and/or presented at meetings without naming you as a participant. Additional research studies could evolve from the information you have provided, but your information will not be linked to you in anyway; it will be anonymous. Although your rights and privacy will be maintained, the Secretary of the Department of Health and

IRB Approval Date: **FEB 15 2016**

2

**UT Arlington
Informed Consent Document**

Human Services, the UT Arlington Institutional Review Board (IRB), and personnel particular to this research have access to the study records. Your records will be kept completely confidential according to current legal requirements. They will not be revealed unless required by law, or as noted above. The IRB at UT Arlington has reviewed and approved this study and the information within this consent form. If in the unlikely event it becomes necessary for the Institutional Review Board to review your research records, the University of Texas at Arlington will protect the confidentiality of those records to the extent permitted by law.

CONTACT FOR QUESTIONS

Questions about this research study may be directed to Gloria Rumao or my faculty advisor, Dr. Taner R. Ozdil. Phone numbers and emails are listed below. Any questions you may have about your rights as a research participant or a research-related injury may be directed to the Office of Research Administration; Regulatory Services at 817-272-2105 or regulatoryservices@uta.edu.

Gloria Rumao
Phone: 331.250.1987
Email: gloria.rumao@mavs.uta.edu

Dr. Taner R. Ozdil
Phone: 817.272.5089
Email: tozdil@uta.edu

As a representative of this study, I have explained the purpose, the procedures, the benefits, and the risks that are involved in this research study:

Gloria Simon Rumao.

02/11/2016

Signature and printed name of principal investigator or person obtaining consent

Date

IRB Approval Date: **FEB 15 2016**

3

**UT Arlington
Informed Consent Document**

CONSENT

By signing below, you confirm that you are 18 years of age or older and have read or had this document read to you. You have been informed about this study's purpose, procedures, possible benefits and risks, and you have received a copy of this form. You have been given the opportunity to ask questions before you sign, and you have been told that you can ask other questions at any time.

You voluntarily agree to participate in this study. By signing this form, you are not waiving any of your legal rights. Refusal to participate will involve no penalty or loss of benefits to which you are otherwise entitled. You may discontinue participation at any time without penalty or loss of benefits, to which you are otherwise entitled.

SIGNATURE OF VOLUNTEER

DATE

IRB Approval Date: **FEB 15 2016**

4

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Gloria has worked as a graduate research assistant at UT Arlington for three years. She strongly feels that Landscape Architecture is not only focused on science and aesthetic beauty but also on human psychology and the surrounding environment. She is specifically interested in urban design, planning and sustainable landscape design.