

Influence of Design Characteristics on Walkability A Study on MUET Campus Jamshoro

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Abstract - Campus physiological form can play a crucial role so that there is a common source of walking activity, which has many social and entertaining effects; the new citizen's viewer shows that good design will be encourage, also increase mental and physical health. This study analysis the gap in MUET campus, cars, and buses was the most preferable mode of travel while walking was the third. The physical organization of campus were disordered, absence of sidewalks, others problems were heat from weather, conflict among pedestrian and vehicles. The research's objectives enhance connectivity and accessibility with the help of shaded well-planned sidewalks on different pedestrian origin and destination points for comfortable walking. In this paper, the four criteria noticed for making walkable university campus include connectivity, accessibility, security and comfort. The number of 278 questionnaires was completed from study area, to find out if these criteria can cause or affect walkability in university campus. The results showed these standards are important from the students' perspective, both quantitative and qualitative methods; Pearson's correlation analysis was used to analyze the data. The conclusion is to achieve walkable university campus as it would be necessary to evaluate present walking conditions, research walking behavior in different settings and consider these four criteria in designing campus for improving walking condition.

Keywords: Campus University, Physical activity, Pedestrian, Sustainability, Walkability.

I. INTRODUCTION

A good structure increases the quality and quantity of pedestrians walking urban depends on a better basis can increase, many various benefits such as support of the environment, creating sustainable areas, greater interaction between students and other users. [1]. Walking through and rapidly, reduce the size of the traffic congestion and to

improve physical activity to promote effects of climate change in the current theories about different environments and difficult interventions can be tested in [2]. Walking is measured as a basis for designing maintainable campus [3]. The walking traveller on foot is exposed to climate change and should be considered as a factor in the design, planning tree could moderate the local climate [4]. One important aspect for walkability in the campus is the quality of the environment, including the safety, comfort, and pleasure it fills in pedestrians. Another important aspect of walkability is the ability of pedestrians to access their origin and destinations called network connectivity. The physical environment is not a network pedestrian to boring for a safe and continuous way. Comfort features essential level of physical comfort a mass qualitatively, energetic and spiritual sidewalk are used to [5]. Amongst the conveyance ways obtainable for everyday movement at MUET field, for vehicles not for pedestrians so walking is that the slowest and greatest restricted now vary, however deals the foremost flexibility. MUET field would to be developed with the intensive use of pedestrian area. The study based on user's opinion and perception. The data would collect, by user's perception, travel movement. The analysis of the survey information was through with relation to the variability of setting, the road functions, and also the activity patterns of the pedestrians on MUET field. The four conditions observed for creating walkable university campus comprise connectivity, convenience, safety and ease. There are several parts which expands walkability, the general agreement is to supply of walkways can increase walkability, number of path variables embrace association to closed transit, shelter sets.

II. THE SIGNIFICANCE OF ACCESSIBILITY, FUNCTIONALITY & SAFETY

Walking accessibility is the best practical method "in the field of planning, design, operation and network infrastructure and keeping it off is a basic human activity,

there is a basic element of a balanced transportation system. A good structure increases the quality and quantity of pedestrians walking, many various benefits such as support of the environment, creating sustainable areas, greater interaction between students etc. The physical environment is not a network pedestrian to boring for a safe and continuous way. Comfort features essential level of physical comfort a mass qualitatively, energetic and spiritual sidewalk are used. The people's may view unfavorable weather as a factor that discourages walking Naturally, the establishment of closure walkways provide benefits with comfort and to take action against climate, this would enhance walking for pedestrians. Apparently, Weather protection against the need is balanced. Lighting, dry weather, need to be worn or closed. As it summarized below.

Campus physical character		Sustainability Aspect obtained
<ul style="list-style-type: none"> • Continuity of walkways. • Directness. • Node Design. 	Connectivity	<ul style="list-style-type: none"> • Reducing Resources and Energy consumption. • Access to Facilities and services. • Safety and security. • Creating nearby community. • Promoting Equity. • Ease of Movement.
<ul style="list-style-type: none"> • Ease of Finding the way • Alternative Routes. 	Accessibility	
<ul style="list-style-type: none"> • Walkway width. • walking away from Road. • Protection from weather. • separating pavement from street by plants. 	Attractiveness	
<ul style="list-style-type: none"> • Trees Beautiful views. • Trees welcoming. 		
Conflict with vehicles.	Safety	

Figure 1: Campus physical character to make walkable campus

III. RESEARCH METHODOLOGY

This study evaluated the walking state of pedestrians in MUET campus. An issue is a variable between the situations as the user's pedestrian on MUET. Campus is considered a pedestrian place, and what does it think of the place of the pedestrian. It is also important to understand the difference between the problems and the perceived solutions. The study of pedestrian environment in the MUET campus objectively and systematically links the gap between a problem and a solution. In this case, MUET Campus needs to determine the vacant lands that are actually used by photography, observations and questionnaire.

Current Walking Condition of Pedestrians at MUET

The Pedestrian used road network for walking, user's faced several difficulties among many areas which create conflict between pedestrian and other vehicles as well as

absence of sidewalks for the comfortable access of pedestrian walkability these user's need to have access to a network that have direct and easy to follow routes which is based on safety, functionality and pleasure also to reduce the conflict between pedestrian and vehicular traffic.

IV. DATA COLLECTION AND DATA ANALYSIS

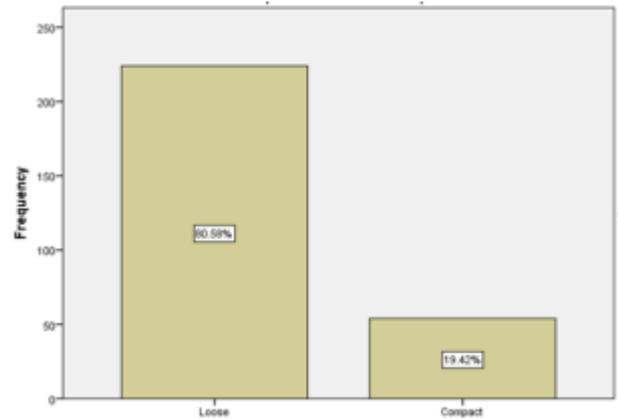


Figure 2: Pedestrian Space to Walk

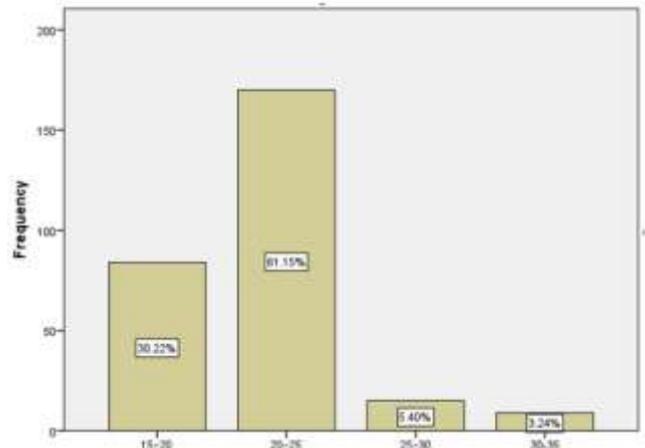


Figure 3: Age of Respondents

The data collected through questionnaire survey the assessment is divided into groups of student overall 278 surveys have been completed then examined by using SPSS software pedestrians were respondent of this survey. Questionnaire shows the Quality standards and acceptable designs for service level have influenced the needs of most pedestrians, level of acceptable comfort for someone walking during the peak hour will be different from the people walking around the evening. The questionnaire was answered in response to the relationship between those affecting the quality of their campus and campus of their lives, the photography survey method is widely used and the best way to collect the data of the pedestrian.

V. RESULTS AND DISCUSSION

From the questionnaire survey of 278 subjects, males and females' students uses campus road network as a pedestrian. 61.15% students have (20-25) age group who travel from one place to other place in the campus, 51.44% said that they usually walk 1 to 2 times in a day while 9.35% walk more than 5 times in a day throughout the campus used vehicles. Respondents think there must be sidewalks for pedestrians which make a separation of vehicular roads but must be sheltered, 40.29% pedestrian taken time 15 to 20 minutes of walking duration to reach on their destination. 89.21% pedestrian said the walking distance is too large while going somewhere in the campus, said Physical Organization of campus are disordered it must be enhanced and offer new sufficient walkway arrangement. 80.58% respondents think the capacity of pedestrian space is very loose, wants more varied texture design quality tackles taking place huge influence on pedestrian's reaction to sidewalks.

TABLE I
Pearson's Correlation Test

Correlations			
		Pedestrian space to walk on campus	Feeling about having the shelters associated with pedestrian function
Pedestrian space to walk on campus	Pearson Correlation	1	-.177**
	Sig. (2-tailed)		.003
	N	278	278
Feeling about having the shelters associated with pedestrian function	Pearson Correlation	-.177**	1
	Sig. (2-tailed)	.003	
	N	278	278

** . Correlation is significant at the 0.01 level (2-tailed).

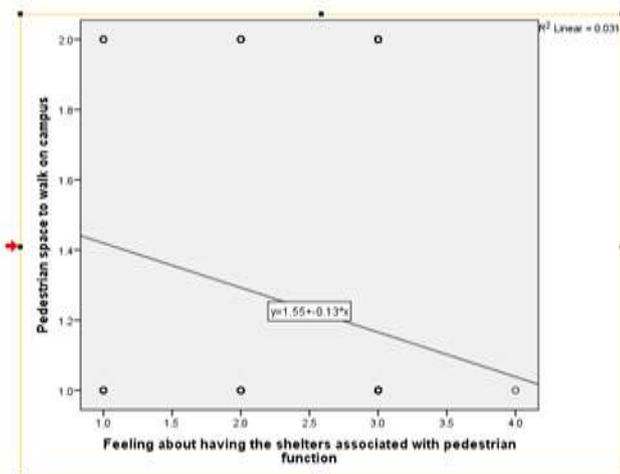
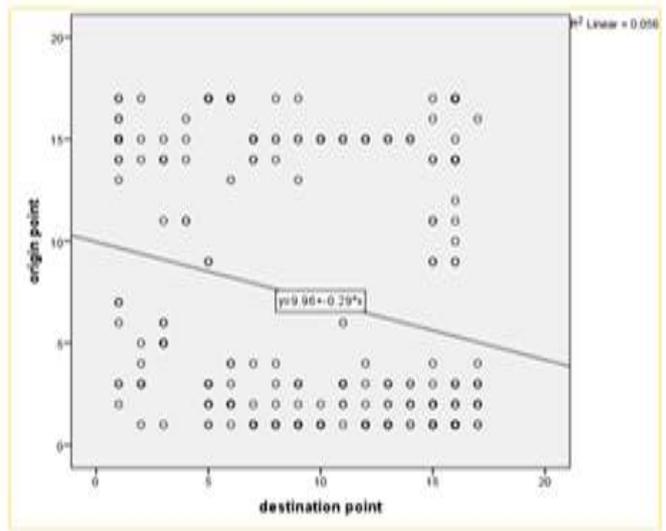


TABLE II

		origin point	destination point
origin point	Pearson Correlation	1	-.236**
	Sig. (2-tailed)		.000
	N	278	278
destination point	Pearson Correlation	-.236**	1
	Sig. (2-tailed)	.000	
	N	278	278

** . Correlation is significant at the 0.01 level (2-tailed).



VI. CONCLUSION

The area of research on pedestrian circulation within the campus on the road network and facilities as the most prominent of MUET campus through the pedestrian movement, its environment and its actions. It is assumed that campus is full of people from the place of pedestrians, which can be sampled and predicted according to the sample, according to the pedestrian walking pattern of MUET campus. This place should not be summarized as dimensions, but also in relation to the number of people that they can expect to use. Walkability is the first step of sustainability as this mode of transportation is often ignored. Cover walkway which can make it green by using shrubs for hedges or vines climbing trees will help to reduce carbon emission and make our students and staff more comfortable during walking along the walkway. The research analyzed that the most suitable track of sidewalks is from MUET entrance gate to zero point than towards the old admin block and central canteen as it is directly connected to main road and these routes are very accessible from the respondent's perspective the pedestrians need to get their places or transit nodes fast and easy.

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REFERENCES

- [1] C. E. Kelly, M. R. Tight, M. W. Page and F. C. Hodgson, Techniques for Assessing the Walkability of the Pedestrian Environment, *Institute for Transport Studies, University of Leeds, Leeds, LS29JT, UK, 2007.*
- [2] Ogilvie, D., Bull, F., Powell, J., Cooper, A. R., Brand, C., Mutrie, N., & Rutter, H., An applied ecological framework for evaluating infrastructure to promote walking and cycling: the iConnect study. *American journal of public health*, 101(3), 473-481, 2011.
- [3] Steg, L., & Gifford, R, Sustainable transportation and quality of life. *Journal of transport geography*, 13(1), 59-69, 2005.
- [4] Kashanijoo, khashayar, pedestrian paths from the basics of design and functional features, Tehran, *Azarakhsh press*, 2010.
- [5] Sarkar, S, Qualitative evaluation of comfort needs in urban walkways in major activity centers. *Transportation Quarterly*, 57(4), 39-59, 2003.

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