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ENHANCING THE SPATIAL VISIBILITY OF PEDESTRIANS TO THE HIDDEN EATING PLACE THROUGH VERTICAL SPACES AT JALAN AMPANG, KUALA LUMPUR

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ABSTRACT

This paper reports the application of space syntax methodology in the design studio works undertaken by architectural students at Universiti Teknologi Malaysia. The design challenge poses the possibility to enhance the spatial visibility of the project's site; the hidden pocket space of a local informal eating place, which is situated in between the two high rises, the Safuan and Sunway towers within the vicinity of Kuala Lumpur City Centre, Malaysia. The visibility of the site is analysed in accordance to the different topographical structure of the area based on the different levels of the building heights within the parameter. The result showed that the connectivity and visual integration values correlate strongly as the site is elevated higher from the ground level. This finding helps equipped students in determining the appropriate and scientific evident-based design decision on the suitable development of the particular context of the area. The strategies chosen had brought together the explorative application of space syntax tool in the urban morphology and spatial configuration analysis to issues related to architectural and urban theory.

KEYWORDS

Space Syntax, Spatial Properties, Pocket Space, Spatial Visibility

1.REVEALING THE HIDDEN POCKET SPACE: THE INFORMAL EATING PLACE

The capital city of Malaysia, Kuala Lumpur is in the rapid urbanization and is now in the succeeding level of development. The rise of urbanism has faced various dilemma in making the city to be well connected in having to provide the metro lines, and express ways circulating within the metropolis. At the inner city core, in a short distance from the iconic Petronas twin tower of Malaysia, a tiny left over portion of land, a small pocket space emerged over time.

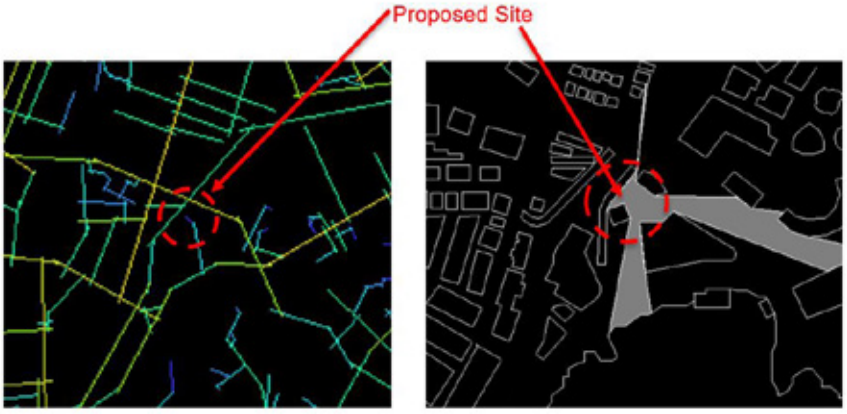
The little lot sits itself beautifully right at the top edge of Klang River bankside, where from the initial life journey of the city began. This is the place, the 'informal public space' where the local workers, corporate members, and the locals alike would gather to enjoy their morning breakfast, afternoon lunch, making the area as a place to mingle, to meet and greet. The scenario sets

within itself the formal and informal social activities happening in the everyday life of the locals in the neighbourhood. Amongst other informal eating places emerging, the pocket space holds and sustains a meaningful and colourful journey of the people around it.

Since the stretch of Ampang-Kuala Lumpur Elevated Highway (AKLEH) became a strong edge in the city fabric, it split the local context surrounding the site into several part (see figure 1). The little site is trapped and squeezed, hidden and unseen, not just by the AKLEH, but also by being in its position; in between Sunway and Safuan towers around it. Seemingly, the rich mixed-presence of the corporate, school children, taxi drivers, were unattended. The majestic locality with the social diversities it manifested seemed unimportant and unnecessary to the fast growing development all around it. This particular pocket space was left abandoned and inefficiently explored of its potential to be integrated with the surrounding activities. And so, the rich of production of the hidden public space; the social landmark of the area, emerging from the community spirit of people from the old village, became neglected. It becomes a story untold to many.

In revealing the potential of the site, this paper investigates the spatial properties of the surrounding area in seeking how best it could function within the constraint context of the location. Firstly, the spatial configuration of the connectivity of the locality is examined by using axial line analysis in order to determine the integration values of the surrounding streets within 500 m radius. Next, the level of visibility is measured by using the Visual Graph Analysis (VGA). In this case, the build-up of the site topography is studied incrementally by layering up the site topography (in accordance to the solid and void derived from the different building heights) within the surrounding 500 metre radius of the site. Subsequently, the strength of relationship (correlation) is analysed between the connectivity of the surrounding based on the movement of pedestrian flow in the area to the visibility of the pedestrians coming to the site.

2. MACRO ANALYSIS BY USING AXIAL MAP TECHNIQUE



Street	Integration value	Pedestrian count			
		9 am	12 pm	5pm	9pm
Ampang (1)	0.948	5	12	4	4
AKLEH (1)	1.665	5	25	26	5
Ampang (2)	2.068	13	25	21	12
Sultan Ismail (1)	1.904	16	21	21	7
Sultan Ismail (2)	2.339	18	35	24	15
Sultan Ismail (3)	2.563	19	30	31	19
Dang Wangi	1.794	5	14	24	19
Raja Abdullah	1.794	11	14	19	13
AKLEH (2)	2.339	17	25	26	26
Correlation co-efficient (r^2)		0.7022	0.6057	0.7393	0.5182

Figure 1 - shows the low integrated line of sight in 2d dimensional and 3 dimensional experiencing of this site. It also shows the value of r^2 of this observation is 0.5182 which is the lowest among the four occasion of observation was made. This shows that there is other influence in movement pattern of pedestrian that attracts people to this site (Mahdzar 2008).

In understanding the context, the spatial configuration and connectivity of the locality is determined via axial line analysis within 500 m radius of the area. The morphological structure of the area has shown that the site is surrounded by high integrated roads, the main roads of Jalan Ampang and Jalan Sultan Ismail. However, these high integrated roads are not directly linked to the site as clearly it is hidden by the two towers as described earlier. The axial analysis helped to prove that the site has been hidden from the main flow of the pedestrians not only due to its locality which is at the back of the towers but also by the configuration of the overall grid structure of the area due to its locality. Figure 1 also shows the integration value of the other surrounding streets within the site area and its neighbourhood.

3. MICRO ANALYSIS BY USING VISUAL GRAPH ANALYSIS (VGA)

The second aspect of this analysis seeks to find the way to reveal the potential of the site by experimenting the topography by analysing its 3D morphological structure through several layers of visual graph analysis.

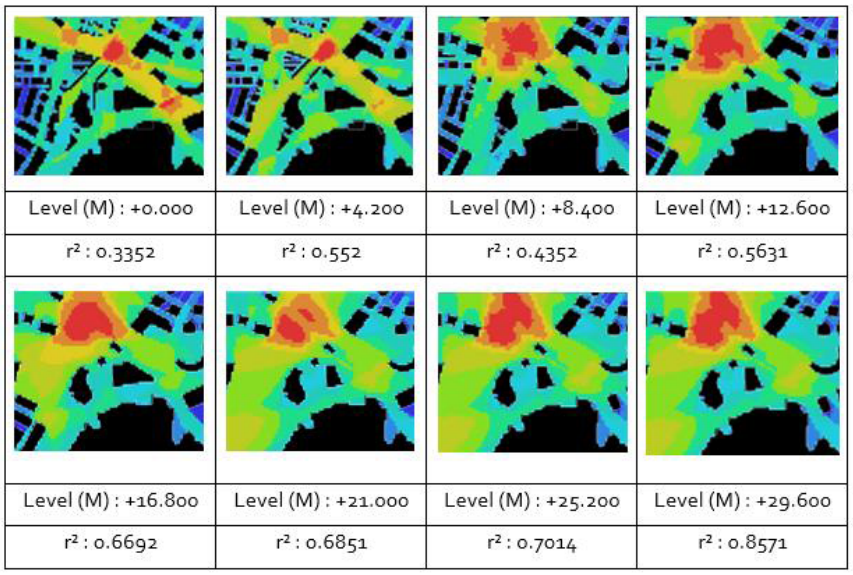
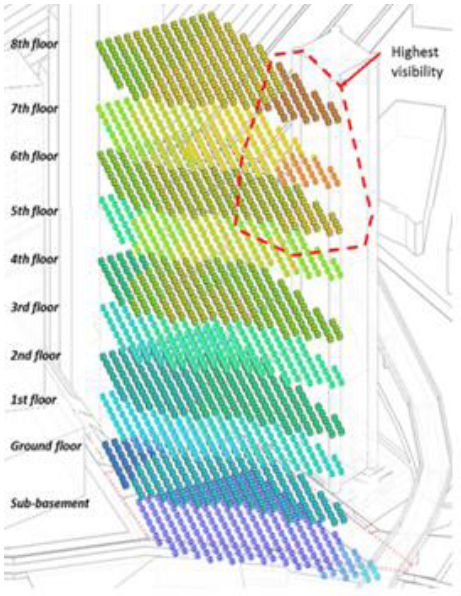


Figure 2 - The relationship between the connectivity and visual integration value of the site within 500 m radius in the neighbourhood

Visual graph analysis is utilised in measuring the spatial characteristics as well as in understanding the full utilization of the morphological structure of the site. As shown in figure 2, the build-up of the site topography is studied incrementally by layering up the site topography (in accordance to the solid and void derived from the different building heights) within the surrounding 500 metre radius of the site. The visibility of the site is then derived separately in accordance to the different topographical levels in according to the building heights. Overall, it is demonstrated that the connectivity and visual integration values correlate strongly as the site is elevated higher from the ground level. The analysis confirms the significant value of visibility properties of the site.



Level (m)	Visual Integration	Visibility vs connectivity (r^2)
+29.600	17.321	0.8571
+25.200	16.984	0.7014
+21.000	15.012	0.6851
+16.800	14.765	0.6692
+12.600	14.125	0.5631
+8.400	12.912	0.4352
+4.200	8.129	0.552
+0.000	7.0525	0.3352

Figure 3 - Visibility graph analysis of each level, 3D 'all-to-all' visual integration. This analysis is used to investigate the properties of visual field which is derived from a spatial environment.

The analysis shows that the pattern of connectivity is transformed from blue to yellow highlighted colour when the level increases from 0.000n in ground level to 25.200 m in 8th level. The development area is directly visible from the main road. Through this 3rd step of analysis, we found the correlation between connectivity and visibility to rebuild the layers upwards making the place more visible from a distance.

The results in figure 3 shows that the correlation increases upwards, therefore it helps to acknowledge the presence of the site. The prospective site has been used by the locals as an informal eating place during the day time. This leads to the question on the fabrication (morphology) of how the built environment give impacts to the pedestrian movement. This question belongs to the area of social science investigating the often-unforeseen social effects that spatial structures have back towards society (Hillier 1985). Once a spatial structure such as an urban area has been formed, it seems to offer unpredictable social potentials and problems.

The way that people use an area does not depend on what planners or architects might be expecting but rather on these potentials offered by the spatial structure. One significant approach in which the environment might be shown to influence social activities is in the investigation of pedestrian movement and behaviour.

5. CONCLUSION

This paper has attempted to seek the appropriate method to enhance the everyday function of a hidden site of a small pocket space, the local informal eating place, within the vicinity of Petronas Tower in Kuala Lumpur City Centre, Malaysia.

The analysis has proven that the spatial visibility of pedestrians could be investigated objectively through applying two syntactical measures. In doing so, firstly, the macro aspect of the morphological structure of the area was studied by applying axial line analysis in conforming to meter radius. The results on the integration values had shown that the site was located in a segregated area within the configurative grid system of the area. Next, the visibility graph analysis was applied in examining the potential of raising up this small site vertically in order to increase the visibility of the pedestrians within the parameter. The layers of visibility of the site were analysed in accordance to the different topography as formed by the different morphological structure, which are based on the different building heights within the parameter of the studied area.

As discussed, the design strategies has taken account the need to enhance the hidden eating place through vertical spaces. This approach has brought forward a new interpretation and gave a new meaning to the development of the pocket space. The analyses have also enabled the students to suggest an alternative approach in designing the appropriate usage of the site by optimising its vertical uses.

The strategies chosen has also brought together the explorative application of space syntax tool in urban morphology and spatial configuration analysis to issues related to architectural and urban theory. The association shows a strong movement pedestrian space vision when it comes to higher plane level. Hence, crafting the space through axial analysis and visibility graph analysis can be a good argument and able to explain and predict the movement from the immediate surrounding into the building.

In conclusion, the study has found the way through which the combination of axial line and visual graph analysis could be used to seek the potential of a certain aspect of site constraint. In particular, the analysis has helped the students in making a design decision more objectively. Further research could be suggested that the 3d vga analysis can be analysed in accordance to the integration value to the specific function (or hierarchy of space function) of the building type. the flow of pedestrian movement into the area within 500

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