Transformations of Urban Space in Community and Pedestrian Wellbeing

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Abstract

Resiliency and well-being are pressing issues in communities worldwide as we cope with the challenges of economy, climate change, and the sustainable development goals. Resilience is the ability of ecological systems to absorb changes of state variables, driving variables, and parameters, and still persist (Holling, 1973). The measure of one nation’s ability to adapt to these evolving issues may vary greatly with another because of their culture and way of life. The ultimate goal of a resilient society is the wellbeing of its community.

Wellbeing is when individuals have the psychological, social, and physical resources they need to meet a particular psychological, social, and/or physical challenge. When individuals have more challenges than resources, the see-saw dips, along with their wellbeing, and vice-versa (Dodge, 2012).

With two-thirds of the world’s population is being expected to reside in cities by 2050, it is clear that urban areas will be the engines of economic growth and sustainable development (UNODC, 2019). Cities across the globe are undermined by chronic insecurity, violence, and corruption, which are often connected to crime challenges originating beyond urban boundaries (UNODC, 2019). Studies show that street crimes are affected by the physical characteristics within a community’s field of vision (Lee, et al, 2017).

This study attempts to model the collective experiences of stakeholders and pedestrians from 2015 - 2018. This study will feature the existing conditions on the urban spaces, such as the sidewalks, the road networks, and barangays (barangays are the smallest unit of government in the Philippines). Mapping the social impacts of lighting, noise, crime, and accidents will feature their geographical distribution along España Boulevard; a major access route in the country’s University Belt.

Findings show that the manifestations of transformations in urban space occur in fluid trajectories that can be in patterns of horizontal, vertical, and cyclical schemes in achieving community and pedestrian wellbeing.

Keywords:
Community and Pedestrian Wellbeing, Urban Space, Transformations

Methodology

Ambient environmental conditions, such as lighting and noise, were measured with the use of light and sound meters below each lamppost and at every street corner of Manila’s España Boulevard, in lux and decibels units, respectively. Agency reports on accidents and crime were collated, tabulated, and mapped to represent the time, day, month, location, vehicles involved, gender, type of crime, and accident. Findings were correlated to reiterate environment and behaviour mitigating circumstances that impact the vulnerabilities in urban space.

Manila’s España Boulevard

España Boulevard serves as gateway from the eastern Metro Manila to the country’s capital and where most universities are located, forming part of Manila’s university belt, more
particularly the University of Santo Tomas. Manila is among the densest cities of the world with a swelling daytime population of more than seventy thousand and more than forty thousand during the evenings (Weller, 2016).

A ground survey was conducted with the help of a light meter and a sound meter installed as smartphone applications to measure both lighting and sound intensities. Surveys were conducted in November 2016 from 6am to 9am, 11am to 1pm, and 6pm and 8pm along España Boulevard. (Villanueva, 2019)

Street lighting was measured during the evenings when lighting intensity was measured below each lamp post, while sound intensity was measured at the corner of each intersection during mornings, noon, and evenings. (Villanueva, 2019)

![Figure 1. Map of Barangays within the vicinity of España Boulevard. Source: Perez, 2018](image1)

![Figure 2. Illumination of Sidewalks on South-West Bound and North-East Bound of España Boulevard in Lux Units. Source: Villanueva, 2019](image2)

Figure 2 above shows that España Boulevard was divided into six study areas, with more lampposts and intensive illumination experienced in Area 3, which is across the University of Santo Tomas. This is due to the presence of restaurants, convenience stores, dormitories, and other commercial establishments. (Villanueva, 2019)

Area 5 does not have any lampposts working during the time of the survey and merely shares illumination from commercial establishments across the street and the center island lamps. Billboards also provide much needed street lighting to as much as 80 lux. The required illumination for pedestrians along commercial areas should receive at least 1-foot candle, which is equivalent to 10.76 lux according to the American National Standard Practice for Roadway Lighting. In the Philippines, the Housing and Land Use Regulatory Board (HLURB) standard merely mentions street lighting at fifty meters apart, but does not prescribe the specific required lighting intensity for pedestrian safety and wellbeing. (Villanueva, 2019)

As a main arterial road, connecting Manila to major cities in the national capital region, transport vehicles are a major source of unwanted sound. Urban street noise has been widely assessed as a contributor to a multitude of health issues in different cities around the world. Studies show that exposure to more than 70 decibels for a prolonged period of time has
significant implications to human health (McAlexander, Gershon, & Neitzel, 2015; Benfield, 2012).

**Manila’s Horizontal, Vertical, and Cyclical Challenges in Urban Space**

In specifying environmental lighting, the goal is to achieve standards of pedestrian lighting at 10.76 lux average horizontal distance and 34 lux at intersections (McLean, 2006), which has been found to be insufficient based on findings above. Furthermore, incidents of electrocution around the area should accelerate the need to review the specifications of the lamp posts to comply with safety standards. Periodic maintenance should be a cyclical procedure practiced at least every period of two years, which manufacturers of street lighting fixtures are willing to do as a guaranty of quality standards. In other countries, warning signs are also posted vertically on lamp posts, so that pedestrians will avoid direct contact with the street lights, and to mitigate hazards of electrocution.

![Figure 3. Sound Levels During a Weekday Survey 6am-8am in Decibels Source: Villanueva, 2019](image1)

![Figure 4. Accidents Hot Spots along España Boulevard based on MMARAS 2015 Image by Rivera, 2017](image2)

Studies show that blue illumination from street lights make pedestrians feel safer because they can distinguish facial features of people clearer than those with areas with yellow hues. However, studies also show that there may also be implications with too much glare caused by LED lights, and mishandling may also cause a cycle of emitting toxic fumes.

Tabulated data shows the distribution of noise along España Boulevard, a major thoroughfare that experiences heavy traffic, are critical and a high level of noise along the Rail Road area (Prudencio to Algeciras - Area 5) with as much as 107 decibels in the evening. A.H. Lacson Avenue (a major connector of north to south expressways) during the mid-day and evenings with 100 decibels in Area 6. Trabajo Market area in M. dela Fuente and Ramon Magsaysay High School, experience as much as 109 decibels in evening when the sidewalks are transformed by street vendors to selling areas in Area 2. The bus stop in front of UST can experience as much as 102 decibels in the morning as shown in Area 6.

Goines’s and Hagler’s studies show that noise levels above 80 decibels “are associated with an increase in aggressive behavior and a decrease in behavior helpful to others”. Depending on the duration of exposure, hearing impairment can begin at around 85 dB, “roughly equivalent to the noise of heavy truck traffic on a busy horizontal roadway” (Goines & Hagler, 2007).
The lack of sufficient lighting and too much noise can induce road accidents and mask criminal activities. Correlation of maps can show that insufficient lighting in Area 5 has translated to accidents, crime, and the indifference of the community to help out in these situations.

Figure 5. Kernel density (hotspot) map of total crime volume from 2015 to 2018
Source: Perez, 2018

Figure 6. Transformations of Urban Space in Community Wellbeing
Source: Author

Manila’s Future Resilient Transformations of Urban Space
Asian urbanism has manifested a need to look deeper into the divided views on public space and providing substitutable transformative powers to communities and pedestrians (Demirtas-Milz, 2012). To achieve a cyclical culture of well being, there needs to be connectivity in Manila’s perspective, which entails three important guideposts in soft and hard community infrastructure-
1. Build on Manila’s cultural strengths;
2. Work for the good of the nation as a whole - acting locally
3. Thinking globally, (De Leon, 2014).

Grassroots effort with initiatives harnessed by the social (horizontal and cyclical) and intellectual (vertical and cyclical) capital of multi-sectoral stakeholders and community planners (Skiba and Dulong, 2008) may manifest in cyclical or non-material factors, such as social supports, freedom, and fairness, which play a bigger role than money in future well-being (Barrington-Leigh, 2018).

Figure 7-8. Horizontal Transformations

Figure 9-10. Vertical Transformations
We need a cyclical or a more “polycentric”, well-connected, and diverse kind of city transformation (Mehaffy, 2019). Cyclical transformations transcend soft and hard infrastructure and focus more on the resiliency of community and pedestrian wellbeing. Humble urban spaces like sidewalks are the arenas of cyclical human interaction, occasionally producing exchanges of information and “knowledge spill overs” that are surprisingly important for vertical economic as well as social development (Jacobs, thru Mehaffy, 2019).

Slowly, the world may change in the direction of leaving no one behind in the common process of the substantive transformation of global societies (Schuerkens, 2017). The vulnerabilities that people encounter in urban space can be mitigated with continued engagement of community movements, the use of mass media, and academic discourses with the youth sector to voice the vision of comprehensive cyclical transformations in pedestrian and community wellbeing.

References:

[1] De Leon, F Jr (2014). A Heritage of Wellbeing: The Connectivity of the Filipino. Mindanao State University-Iligan Institute of Technology. Retrieved from https://www.msuit.edu.ph/ on 20 Feb 2018.

[2] Demirtas-Milz, N (2012). Urban Informality Reconsidered in Neoliberal Context: Gecekondu, Identity, Poverty and Islamic Philanthropism in Turkey. MacFarlane, C. and Waibel, M. (2012). Urban Informalities: Reflections on the Formal and Informal. Ashgate Publishing (2012) and Routledge (2016) Abingdon, Oxon and NY, USA.

[3] Dodge, R., Daly, A, Huyton, J, & Sanders, L (2012). The Challenge of Defining Wellbeing. International Journal of Wellbeing, 2(3), 222-235. doi:10.5502/ijw.v2i3.4
[4] Goines, L and Hagler, L (2007). Noise Pollution: A Modern Plague. *Southern Medical Journal*. Volume 100, pp. 287-294. Retrieved from nonoise.org/library/smj/smj.htm

[5] Helne, T & Hirvilammi, T (2015). Wellbeing and Sustainability: A Relational Approach. Sustainable Development, 2015 - Wiley Online Library, Volume 23, Issue 3, May/June 2015. Pages 167-175.

[6] Holling, C S 1973. “Resilience and Stability of Ecological Systems.” *Annual Review of Ecology and Systematics* 4 (1): 1–23, p. 18 thru Anne Tiernan, Lex Drennan, Johanna Nalau, Esther Onyango, Lochlan Morrissey & Brendan Mackey (2018) A review of themes in disaster resilience literature and international practice since 2012, *Policy Design and Practice*, DOI: 10.1080/25741292.2018.1507240

[7] Lee, I, Jung, S, Lee, J, & Macdonald, E (2017). Street crime prediction model based on the physical characteristics of a streetscape: Analysis of streets in low-rise housing areas in South Korea. *Environment and Planning B: Urban Analytics and City Science*. https://doi.org/10.1177/2399808317735105

[8] McAlexander, T P, Gershon, R R, & Neitzel, R L (2015). Street-level noise in an urban setting: assessment and contribution to personal exposure. *Environmental health: a global access science source*, 14, 18. Doi: 10.1186/s12940-015-0006-y

[9] McLean, D (2006) Transport Accident Commission of Australia Roadway Pedestrian Illuminance Levels for Sidewalks. *Guide for the Design of Roadway Lighting*. Retrieved from sunshinecoastastronomy.files.wordpress.com/2015/01/dmd-roadway-lighting.pdf

[10] Mehaffy, M (2019) We Need ‘Goldilocks,’ Not ‘Voodoo,’ Urbanism. Retrieved from https://www.cnu.org/publicsquare/2019/01/16/we-need-%E2%80%98goldilocks%E2%80%99-not-%E2%80%98voodoo%E2%80%99-urbanism on February 18, 2019.

[11] Philippine Housing and Land Use Regulatory Board (HLURB), (2009). Revised Rules and Regulations Implementing the Subdivision and Condominium Buyer's Protective Decree, *A Joint Project of the Rules and Standards Development Group and the Technical Working Group on the Revision of the IRR*. Retrieved from http://www.hudcc.gov.ph/sites/default/files/styles/large/public/document/IRR%20PD%20957.pdf on 31 March 2019.

[12] Schuermens, U, 2017. Social Changes in a Global World. *London: Sage Publications*

[13] Skiba, DJ (1), DuLong D, 2008. Using TIGER vision to move your agenda forward. *Healthcare Informatics, University of Colorado at Denver and Health Sciences Center, School of Nursing, Denver, CO, USA*. DOI: 10.1097/01.NUMA.0000313090.04519.22. Retrieved from http://s3.amazonaws.com/rdcms-himss/files/production/public/FileDownloads/tiger-report-executive-summary.pdf on 20 Feb 2018

[14] United Nations Office on Drugs and Crimes, 2019. Urban Safety and Good Governance. Retrieved from https://www.unodc.org/unodc/en/urban-safety/index.html on 31 March 2019.

[15] Villanueva, C M S, (2019). Community Engagement for Environmental Lighting and Acoustics in the Manila’s University Belt. *Resourceedings*, [S.l.], v. 2, n. 1, p. 140 - 156, Feb. 2019. ISSN 2537-074X. Available at: https://www.press.ierek.com/index.php/Resourceedings/article/view/457. Date accessed: 31 mar. 2019. doi:http://dx.doi.org/10.21625/RESOURCEEDINGS.v2i1.457.

[16] Weller, C (2016). Manila is the most crowded city in the world — here’s what life is like. *The Business Insider* as retrieved from http://www.businessinsider.com/manila-worlds-most-crowded-city-2016-8 on 16 May 2018.