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# Impact of Public Space Utilization on Knowledge Community Attachment

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**ABSTRACT:** *This article evaluates the potentials of public space in fostering community attachment in Cyberjaya Malaysia. We take a quantitative approach to investigate the frequent usage of public space by users in the study area in relation to place rootedness, place familiarity, place belonging, place identity, and place dependence as predictors of community attachment. Public space utilization was assessed with the respondent degree of participations in public space active/passive activities on daily, weekly, twice a week, monthly, and occasional basis. A total of 173 research questionnaires were administered to collate the respondent's perception. The finding indicated that regular utilizing of public space is required in developing knowledge community attachment. However, place rootedness and place identity attainment demonstrated the need for more frequent public space utilization than other community attachment predictors. This implies that people need to interrelate with their social and physical environment to attain community attachment.*

**KEYWORDS**: Community attachment; Public space; Knowledge; Social activities; physical environment.

## INTRODUCTION

The goal of knowledge community is geared towards an effective attainment of knowledge based development (Anttiroiko, 2004) through sustainable productivity. Knowledge community residents mainly encompass experts in varied area of specialization such in Engineering, medical, academia, scientist. Residents' attachment to community is associated with group cohesion and community development (Uzzell and Pol, 2002; McKnight, M. L. et at., 2017; Guizhen M. 2020). Therefore, group performance and productivity can be influenced by individual and collective attachment to the community physical environment. It has been argued that physical environment accommodates human social activities and has significant influence on place attachment (Sugihara and Evans, 2000). When residents attach much interest to green and recreational areas in their environment they develop an attachment that is capable of facilitating place and community attachment.

Place attachment is a process that encourages unity and social ties among groups within an area, settlement, and community (Brown and Perkins, 1992; Theodori, 2004, 2018). It has been suggested that place attachment influences attitudes and behavior of people (Uzzell and Pol, 2002;

Ross, A., et. at., 2020). Community attachment is an offshoot of place attachment. Thus, knowledge community requires resident's attachment towards its development. Knowledge community is a non-convectional settlement, and will therefore require the resident's strong affinity and attachment towards its social bonds and technology innovations. However, public space is a designated social place in the built physical environment that accommodates human social activities (Gehl, 2001, Carmona et al. 2008; Lucy T. et at., 2017 ; Ayala-Azc´A. et al., 2019) needed for community attachment. A viable and sustainable urban city is characterized by the degree of publicness of its public space (Wu & Planting, 2003). Public spaces are considered as urban vacuum and community social arena (Gehl, 2000; Carmona et al., 2008; Giuseppe S. et at., 2022; Biernacka, M., Kronenberg, J. 2018.; Lucy T. et at., 2017; Andrew K. et at., (2022). It has been argued that in a good quality social spaces and physical environment, there is likely to be an increase in social cohesion as a collective device to achieve desirable community familiarity and attachment (Pol, 1998). The greater the degree of residential social interactions, the stronger the residential community attachment and satisfaction (Lalli, 1992; Uzzell and Pol, 2002). Factors such as physical closeness and access to public space serve to support community attachment.

A socially coherent group is achieved through physical proximity, basic features around them, and the shared needs that can be collectively satisfied to generate a shared social identity. For instance, the mode of community sameness, understanding, and interpretation of social issues form good coherency. Availability of urban public space provides avenue for neighborhood interaction, encourages community interdependence, and facilitates group cohesiveness that promotes community attachment among neighborhoods (Norzalina, 2011; Theodori, 2000; Mannarini, T. et al., 2020). The idea of knowledge community is rooted in the interrelationship and collaborations among the research institutes/university, the industrial and commerce institutions for the realization of knowledge based development. Cyberjaya is a knowledge community in Malaysia. It is referred to as Malaysia multimedia super corridor for knowledge based development (Setia Haruman Sdn. Bhd, 2007). It recorded day population of 36,000. The concepts of knowledge community that anchored on knowledge based development require that the city actors exhibit good attachment to the community. This study investigates community attachment in Cyberjaya Malaysia (knowledge community) in relation to public space utilization ia the following research questions: Does the degree of public space utilization by residents influence residents community attachment? Does the degree of public space utilization by residents influence their level of community attachment?

**Measures**

This study considered public space utilization as human engagement in active/passive activities in public spaces while it refers to public space utilization frequency as the degree of the user's engagement in active/passive activities in public spaces. The study applied the frequency of respondent utilization of public space ranging from *daily; twice a week; weekly; monthly; and occasional* utilizing of public spaces in the study area. The aforementioned measurements were rated using Likert-scale of 5 points, ranging from 5 point for daily utilization of public space to 1 point for occasional utilization of public space respectively, using structured survey questionnaires. Five variables were used to measure community attachment. Two variables were

adopted from Williams and Vaske (2003) "*place identity and place dependence*". Three variables were adopted from Hammitt et al. (2006) "*place familiarity, place rootedness, and place belongings*".

Respondent's public space utilization parameter was used to investigate the community attachment variables by using analysis of variance (ANOVA) to assess the average mean and group mean differences. Cronbarch's Alpha was run to test the reliability of the data while factor analysis was conducted to ascertain the data consistency.

**Demographical survey**

Demographical factors of age, residents' status and gender were used to investigate their impact on this study. The first degree and postgraduate degree holders exhibit 64.7% and 17.9% respectively. Thus, the finding supported literature that postulated knowledge community as characterised by higher literacy residents (Anttiroiko, 2004) as higher percentages of the respondents are first degree and post graduate degree holders. It was also indicated that most of the respondents were residents of the study area (Table 1).

Table 1 Demographical assessment

| Measure | Items | Per cent (%) |
|---|---|---|
| ***Gender*** | Male | 65.3 |
| | Female | 34.7 |
| ***Residents Status*** | Yes | 74.6 |
| | No | 25.4 |
| ***Duration of Residents*** | 0 – 3yrs | 30.1 |
| | 4 – 6yrs | 18.5 |
| | 7 – 9yrs | 41.0 |
| | 10 yrs. and above | 10.4 |
| ***Educational status*** | High School or equivalent | 2.3 |
| | undergraduate | 15.0 |
| | graduate | 64.7 |
| | postgraduate degree | 17.9 |
| ***Marital Status*** | married | 59.0 |
| | single | 38.2 |
| | other | 2.9 |
| ***Types of public space utilized*** | neighbourhood/communal spaces- | |
| | public parks- | 57.2 |
| | public square/urban cluster | 11.0 |
| | courtyards- | |
| | Other(canopies,-entrance porch, etc.) | 19.1 |
| | | 12.7 |

## ANALYSIS AND RESULTS

The Cronbach's Alpha for the variables ranges from 0.721 to 0.947, indicating that the variables were reliable as it is above the recommended benchmark of 0.7 values (Nunnally and Bernstein,

1994). Confirmatory factor analysis (CFA) was used to test all the measurement model variables as recommended by Anderson and Gerbing (1992). The factor loadings of the indicators were significant at 0.01 which indicates good loading, as recommended by Bagozzi and Yi (1988). Analysis of variance (one-way ANOVA) was used to assess the study data. Statistically significant difference was found among the five levels of public space utilization frequency and the community attachment variables. From the analysis of variance, place belongingness exhibited F (4, 168) = 163.8, p = 0.000. Place dependence exhibited F (4, 168) =213.5, p = 0.000. Place familiarity exhibited F (4, 168) = 7.5, p = 0.000. Place identity exhibited F (4, 168) = 271.3, p = 0.000. Place rootedness exhibited F (4, 168) = 246.4, p = 0.000 (Table 2).The tested variables indicate reliable loadings and significances.

The Post hoc HSD Test compared the mean difference of the tested variables. It was indicated that there are significant mean differences in respondents that utilized public space on daily basis and those respondents that utilized public space on weekly, twice a week, monthly, and occasional basis as reflected in their mean differences (p = 0.01). Respondents that utilized public space twice a week had no significant differences with those that utilized public space on weekly basis ( p = 0.989) but exhibited significant difference with those that utilized public space on daily, monthly, and occasional basis (p = 0.01). Respondents that utilized public space on weekly basis exhibited mean significant difference with those respondents that utilized public spaces occasionally, monthly, and daily (p= 0.01), but exhibited no significant mean difference with those respondents that utilized public space twice a week (p = 0.989).

Table 2. Summary of One-Way Analysis of Variance of public space utilization and community attachment

| **Source** | | Sum of Squares | *df* | Mean Square | F | *p* |
|---|---|---|---|---|---|---|
| **PLACE BELONGINGS** | Between Groups | 179.606 | 4 | 44.902 | 163.829 | .000 |
| | Within Groups | 46.045 | 168 | .274 | | |
| | Total | 225.651 | 172 | | | |
| **PLACE DEPENDENCE** | Between Groups | 93.695 | 4 | 23.424 | 213.521 | .000 |
| | Within Groups | 18.430 | 168 | .110 | | |
| | Total | 112.125 | 172 | | | |
| **PLACE FAMILARITY** | Between Groups | 6.354 | 4 | 1.589 | 7.496 | .000 |
| | Within Groups | 35.605 | 168 | .212 | | |
| | Total | 41.959 | 172 | | | |
| **PLACE IDENTITY** | Between Groups | 230.008 | 4 | 57.502 | 271.291 | .000 |
| | Within Groups | 35.609 | 168 | .212 | | |
| | Total | 265.617 | 172 | | | |
| **PLACE ROOTEDNESS** | Between Groups | 280.319 | 4 | 70.080 | 246.433 | .000 |
| | Within Groups | 47.775 | 168 | .284 | | |
| | Total | 328.095 | 172 | | | |

Table 3. Summary of findings indicating interrelationship among variables

| Community attachment variables | Degree of public space utilization | | | | |
|---|---|---|---|---|---|
| | Daily | Twice a Week | Weekly | Monthly | Occasional |
| **Place Rootedness** | • | • | | | |
| **Place Identity** | • | • | | | |
| **Place Belongings** | • | • | • | | |
| **Place Dependence** | • | • | • | • | |
| **Place Familiarity** | • | • | • | • | • |

## DISCUSSION AND CONCLUSION

Our study on residents' attachment to knowledge community indicates that place familiarity as one of the predictors of community attachment can be acquired in a public space that accommodates human social activities. Place familiarity exhibited higher average mean value (4.3179) across various levels of public space utilization features among the respondents. It can be postulated that a knowledge community resident has the tendency to being acquainted with his or her community. The respondents that utilized public space on daily basis demonstrated highest place familiarity to knowledge community with mean value of 4.6124. Therefore, place familiarity can be considered as a liberal factor of community attachment (Table 3). Place dependence exhibited significant average mean of 3.9056 collectively on the level of public space utilization among the respondents but it demonstrated no statistical significance (mean = 1.9683) in relation to the respondents that utilized public space on occasional basis. Daily utilization of public space exhibited highest significant mean (4.4264) among the tested variables.

In a knowledge community, public space can help in creating good community attachment for the residents. Importantly, this study indicates that a minimum of twice-in-a-week utilizing of public space is essential to achieve desirable knowledge community attachment. The study recommends that the design, planning, and implementations of physical development of knowledge communities should give special consideration to public space provisions as a precursor towards community attachment.

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