Smith, N. (1984). Uneven Development: Nature, Capital and the Production of Space. Oxford, England: Blackwell.

Smith, N. (2003). New Globalism, New Urbanism: Gentrification as Global Urban Strategy. In N.

Smith, N. (2009). Introduction: Altered States. In H. Gautney, O. Dahbour, A. Dawson, & N. Smith (Eds.), Democracy, States, and the Struggle for Global Justice (pp. 1-16). London, England: Routledge.

Swyngedouw, E. (2003). Globalisation or 'Glocalisation'? Networks, Territories and Re-Scaling. Reader in Economic Geography. Retrieved from: http://www.europaforum.or.at/site/Homepageifhp2003/downloads/Langfassung_swyngedouw1.pdf

Swyngedouw, E. (2010, May 26). Post-Democratic Cities: For Whom and for What? Paper presented in Concluding Session, Regional Studies Association Annual Conference, Budapest.

Tyler, I. (2015). Classificatory struggles: class, culture and inequality in neoliberal times. The Sociological Review, 63(2), 493-511.

Wilson, J., & Swyngedouw, E. (2015). Seeds of dystopia: Post-Politics and the Return of the Political. In J. Wilson & E. Swyngedouw (Eds.), The Post-Political and its Discontents (pp. 1-24). Edinburgh, Scotland: Edinburg University Press.

Yiğit Turan, B. (2017, in press). Occupy Gezi Park: The Never-Ending Search for Democracy, Public Space, and Alternative City-Making. In J. Hou & S. Knierbein (Eds.), City Unsilenced. Public Space and Urban Resistance in the Age of Shrinking Democracy (pp. 83-93). London, England: Routledge.*

Žižek, S. (2012). The year of dreaming dangerously. London, England: Verso Books.

ID 1454 | PERCEIVED QUALITY OF URBAN OPEN SPACE: A STOCKHOLM CASE STUDY

Östen Axelsson[1]
[1]Stockholm University
oan@psychology.su.se

1 INTRODUCTION

In investigating the quality of urban open space, it is important to investigate how the visual and auditory components contribute to the total quality. The majority of studies investigating audio-visual interaction in environmental perception have concerned how visual stimuli affect auditory perception, such as how vegetation affects the perception of the sound of road traffic from a motorway (e.g., Anderson, Mulligan, Goodman, Regen, 1983). In general, these studies indicate that how people perceive sound depends on the visual context. That is, some sounds are more appropriate in one context than in another, which seems to depend on the participants' expectations. For example, a city center is expected to sound like a city center, and not like a forest, and vice versa. Typically, a mismatch resulted in discomfort.

A handful of laboratory studies investigated how perception of auditory and visual aspects related to the perception of the composite of audio-visual information (e.g., Gifford & Ng, 1982; Kuwano, Namba, Komatsu, Kato, & Hayashi, 2001; Morinaga, Aono, Kuwano, & Kato, 2003). Chiefly, these studies showed that visual aspects of environments were more important than auditory aspects. However, how important the visual aspects were, was highly variable across different environments. This indicates that auditory information might dominate over visual information at some point (see also Gan, Luo, Breitung, Kang, & Zhang, 2014; Preis, Kociński, Hafke-Dys, & Wrzosek, 2015).

The present paper concerns a case study conducted in collaboration with the City of Stockholm, Sweden, in the summer of 2016. The purpose was to characterize and to investigate the potential for improving the quality of the environment in a centrally located park area in the city. Walks were conducted in situ together with 61 residents. In the walks the participants assessed five preselected sites in and near the park area, with regards to their perceived total, auditory and visual qualities.

2 METHOD

2.1 CASE STUDY AREA

The case study area consisted of 5 preselected assessment sites in and near a large urban park area in Stockholm, Sweden, located by a busy road. They were selected based on a planned intervention that might be implemented in 2017. Two of the assessment sites were selected as references where the planned intervention was not expected to have any impact. The other three were selected based on where the planed intervention was expected to have the greatest impact. Because there are plans to follow up the intervention, if implemented, the exact location of the case study area, or the nature of the planned intervention, cannot be revealed in this paper.

2.2 PARTICIPANTS

The participants in the study were 61 residents living close to the case study area (38 female, 22 male, 1 missing value), aged 15 to 77 yrs. (Mage = 54.6 yrs., SDage = 15.2). All households in the block of houses closest to the case study area, in which the oldest member was between 18 and 70 years old, received an invitation by post to take part in the study. In total, 1,583 invitations were sent out. For 17 of these the recipient was unknown, and the letter returned. Among those who received the invitation, 73 persons responded and expressed an interest to take part. The participants were informed that the purpose of the study was to investigate how residents in their area experience the outdoor environment, and to develop methods on how to assess the urban outdoor environment in general. The participants were reimbursed with gift certificates with a total value of 300 SEK per person.

2.3 DATA COLLECTION INSTRUMENT

The data collection instrument consisted of a pencil and paper questionnaire. It included three pages for every assessment site. The first of the three pages concerned the overall impression of the site, the second concerned the sound environment, and the third concerned the visual environment, in this order for all sites. For each of the three aspects of the environment there were three broad questions. The first of these three questions concerned what objects the participants perceived as dominant (artefacts, nature or people), the second concerned the perceived overall quality of the site, and the third concerned the perceived affective quality of the environment. To make it possible to compare the responses for the three aspects of the environment, these three broad questions were formulated to be as similar as possible for each condition.

2.3.1 DOMINATING OBJECTS

The first question for each of the three conditions was:

- “Overall, to what extent do you perceive that the following 3 factors (both auditory and visual impressions) dominate this site right now?”
- “Listen – to what extent do you hear the following 4 types of sounds right now?”
- “Look around – to what extent do you see the following 3 types of components right now?”

In the first case the three overall factors were artefacts, nature and people. In the second case the four sound sources were road traffic, other noise, sounds of people, and natural sounds. In the third case the three visual components were manmade structures, nature and people. The participants assessed how dominant these factors were on a 5-point ordinal category-scale with the verbal descriptors: “not at all,” “a little,” “moderately,” “a lot,” and “dominates completely.”

2.3.2 PERCEIVED QUALITY

The second question for each of the three conditions was:

- “Overall, how would you describe this site as you experience it right now?”
- “How would you describe the surrounding sound environment right now?”
- “How would you describe the surrounding environment visually right now?”

For each of these questions, the participants provided an answer on a 5-point ordinal category-scale with verbal descriptors. The five verbal descriptors were “very good,” “good,” “neither good, nor bad,” “bad,” “very bad.”

2.3.3 PERCEIVED AFFECTIVE QUALITY

The third question for each of the three conditions was:

1. “Overall, how do you experience this site right now?”
2. “How do you experience the surrounding sound environment right now?”
3. “How do you perceive the surrounding environment visually right now?”

The participants responded on an 8-point semantic differential scale with the endpoints defined by:

“pleasant – unpleasant” (pl), “soothing – stressing” (so), “interesting – uninteresting” (in), “eventful – uneventful” (ev), “agreeable – annoying” (ag), “exciting – humdrum” (ex), “dynamic – static” (dy), “peaceful – restless” (pe), “living – lifeless” (li), “appealing – repulsive” (ap), “active – inactive” (ac), and “calm – chaotic” (ca), (abbreviations are used in equations below). These attributes were inspired by Axelsson, Nilsson and Berglund (2010).

2.3.4 OTHER QUESTIONS

On the first of the three pages for a site, the participants were also asked to respond on how they perceived maintenance as well as security/safety at the site. They responded on a 5-point ordinal category- scale of the same format as for perceived overall quality (i.e., good to bad). On the second of the three pages for a site, the participants were also asked to assess to what extent the surrounding sound environment was perceived as appropriate to the site. They responded on a 5-point ordinal category-scale with the verbal descriptors: “not at all,” “a little,” “moderately,” “a lot,” and “perfectly.” On the third of the three pages for a site, the participants were also asked how often they visit or pass by the site. They responded on an ordinal scale with seven response alternatives: “Every day,” “At least once a week,” “At least once a month,” “More seldom than every month, but at least ten times every year,” “At least once a year, but less than ten times,” “More seldom than every year,” and “This is the first time.”

At the end of the questionnaire, the participants were asked about their year of birth, their sex, their highest degree of education, and type of main occupation. Finally the participants were provided an opportunity to express other opinions on the five assessment sites, the study or the questionnaire, in an open- ended format.

2.4 PROCEDURE AND DESIGN

Walks were organized in August and September 2016, in which the 61 participants assessed the 5 sites with the aid of the questionnaire. The walks were conducted in groups, based on the participants’ availability. There were 14 groups with between 2 and 6 participants in each (M = 4.4 participants, SD = 1.4). All groups visited the 5 assessment sites in an irregular but sensible order, arranged in such a way that no group visited the 5 sites in the same order as any other group. In addition, the aim was to begin the walks from each of the 5 sites an equal number of times (in this case 3 times). Because there were 14 groups, walks begun at the last of the 5 sites twice. Chiefly, the walks were organized in the evening on working days — after working hours and before sunset (11 walks) — and during the day in the weekends (3 walks). The main criteria were that the walks were conducted in daylight, and during hours when the residents normally were at home. A walk took approximately 1.5 hours.

3 RESULTS

The results are reported for each of the five assessment sites separately. First, the site is described based on what objects the participants perceived as dominant at the site; totally, auditory and visually.

Arithmetic mean values are reported as the measure of central tendency among the participants, based on the individual responses, where 1 is the lowest and 5 the highest response. Second, the results of a set of hierarchical linear regression analyses (SPSS 22 for Windows) are reported, related to the perceived overall as well as the perceived affective quality of the site. Eq. 1 is used as statistical model.

$$Total_x = a + b_1 \times Auditory_x + b_2 \times Visual_x \quad (1)$$

The subscript x in the equation represents the type of quality measure used in the analysis. The statistical model is used to analyze to what extent the auditory and the visual quality contributed to the overall quality of a site.

For perceived affective quality, the scores of the two underlying components Pleasantness (Pl) and Eventfulness (Ev) were calculated by Eq. 2 and 3, using the induvial responses for each site.

$$Pl=(pl+ag+ap)+ \sqrt{1/2}(in+ex+dy)+ \sqrt{1/2}(so+pe+ca) \quad (2)$$

$$Ev=(ev+li+ac)+ \sqrt{1/2}(in+ex+dy)- \sqrt{1/2}(so+pe+ca) \quad (3)$$

The square root out of a half in the equations is used as a weighting function to adjust the scores of the relevant variables, because they are assumed to be located at a 45o angle to the two main components (Axelsson, Nilsson & Berglund, 2010).

3.1 SITE A

Table 1 presents arithmetic mean values for how the 61 participants perceived Site A totally, auditory and visually. It shows that artifacts dominated the site, and that nature was not perceived at all. The participants perceived people at a moderate rate, but they could only be heard a little. Totally and auditory the site was perceived as bad. Visually it was perceived as neither good nor bad. On average, the participants visited or passed by this site every day.

Site A	Artefacts	Nature	People	Quality
Total	4.72	1.35	3.25	2.48
Auditory	4.62	1.07	1.87	1.85
Visual	4.75	1.39	3.31	2.69

Table 1 – Arithmetic mean values for how 61 participants perceived Site A totally, auditory and visually

Perceived auditory quality (= 0.416, t = 3.56, p = 0.001) influenced perceived total quality stronger than perceived visual quality (= 0.321, t = 2.75, p = 0.008), ($F_{2,58}$ = 20.46, p < 0.001, R^2 = 0.41). On its own, perceived auditory quality explained 34% of the variance in perceived total quality. Visual quality added another 8%.

Auditory pleasantness (= 0.497, t = 5.21, p < 0.001) influenced total pleasantness stronger than visual pleasantness (= 0.423, t = 4.44, p < 0.001), ($F_{2,58}$ = 69.05, p < 0.001, R^2 = 0.70). On its own, auditory pleasantness explained 60% of the variance in total pleasantness. Visual pleasantness added another 10%.

Auditory eventfulness (= 0.190, t = 1.19, p = 0.238) did not influence total eventfulness over and above visual eventfulness (= 0.559, t = 3.52, p = 0.001), ($F_{2,58}$ = 31.68, p < 0.001, R^2 = 0.52). Auditory eventfulness (= 0.714, t = 7.84, p < 0.001) explained 51% in total eventfulness, alone ($F_{1,59}$ = 61.50, p < 0.001).

3.2 SITE B

Table 2 presents arithmetic mean values for how the 61 participants perceived Site B totally, auditory and visually. It shows that the participants perceived artifacts a lot, in total and visual terms. In auditory terms, artifacts (i.e., road traffic sound) dominated the site. The participants perceived nature a little in total and visual terms, and not at all in auditory terms. The same observation was true for the presence of people. Totally and auditory the site was perceived as bad. Visually it was perceived as neither good nor bad. On average, the participants visited or passed by this site at least once every week.

Site B	Artefacts	Nature	People	Quality
Total	4.25	2.15	2.51	2.23
Auditory	4.48	1.03	1.41	1.89
Visual	4.10	2.46	2.34	2.93

Table 2 - Arithmetic mean values for how 61 participants perceived Site B totally, auditory and visually

Perceived auditory stronger than perceived visual quality (= 0.243, $t = 2.30$, $p = 0.025$), ($F_{2,57} = 31.91$, $p < 0.001$, $R^2 = 0.53$). On its own, perceived auditory quality explained 48% of the variance in perceived total quality. Visual quality added another 4%.

Auditory pleasantness (= 0.607, $t = 6.78$, $p < 0.001$) influenced total pleasantness stronger than visual pleasantness (= 0.314, $t = 3.51$, $p = 0.001$), ($F_{2,58} = 63.00$, $p < 0.001$, $R^2 = 0.69$). On its own, auditory pleasantness explained 62% of the variance in total pleasantness. Visual pleasantness added another 7%.

Visual eventfulness (= 0.147, $t = 1.49$, $p = 0.142$) did not influence total eventfulness over and above auditory eventfulness (= 0.722, $t = 7.29$, $p < 0.001$), ($F_{2,58} = 62.69$, $p < 0.001$, $R^2 = 0.68$). Auditory eventfulness (= 0.820, $t = 10.99$, $p < 0.001$) explained 67% in total eventfulness, alone ($F_{1,59} = 120.66$, $p < 0.001$).

3.3 SITE C

Table 3 presents arithmetic mean values for how the 61 participants perceived Site C totally, auditory and visually. It shows that the participants perceived the presence of artefacts as moderate. The participants could see a lot of nature, but could not hear it. The participants perceived the presence of people as moderate. Totally and visually the quality was good. Auditory it was neither good nor bad. On average, the participants visited or passed by this site at least once every week.

Site C	Artefacts	Nature	People	Quality
Total	3.00	3.66	3.11	3.57
Auditory	3.21	1.36	2.79	3.11
Visual	3.11	3.70	3.02	3.83

Table 3 - Arithmetic mean values for how 61 participants perceived Site C totally, auditory and visually

Perceived visual quality (= 0.487, $t = 4.88$, $p < 0.001$) influenced perceived total quality stronger than perceived auditory quality (= 0.373, $t = 3.74$, $p < 0.001$), ($F_{2,57} = 26.13$, $p < 0.001$, $R^2 = 0.48$). On its own, perceived visual quality explained 35% of the variance in perceived total quality. Visual quality added another 13%.

Visual pleasantness (= 0.541, $t = 7.43$, $p < 0.001$) influenced total pleasantness stronger than auditory pleasantness (= 0.465, $t = 6.39$, $p < 0.001$), ($F_{2,58} = 105.26$, $p < 0.001$, $R^2 = 0.78$). On its own, visual pleasantness explained 63% of the variance in total pleasantness. Auditory pleasantness added another 15%.

Visual eventfulness (= 0.765, $t = 10.13$, $p < 0.001$) influenced total eventfulness stronger than auditory eventfulness (= 0.189, $t = 2.50$, $p = 0.015$), ($F_{2,58} = 119.38$, $p < 0.001$, $R^2 = 0.81$). On its own, visual eventfulness explained 78% of the variance in total eventfulness. Auditory eventfulness added another 2%.

3.4 SITE D

Table 4 presents arithmetic mean values for how the 61 participants perceived Site D totally, auditory and visually. It shows that the participants perceived artefacts a little. They saw a lot of nature but only heard it a little. They perceived the presence of people as moderate, and the environment as good. On average, the participants visited or passed by this site at least once every week.

Site D	Artefacts	Nature	People	Quality
Total	2.16	4.10	3.33	4.18
Auditory	2.56	2.25	2.89	3.80
Visual	2.12	4.18	3.20	4.18

Table 4 - Arithmetic mean values for how 61 participants perceived Site D totally, auditory and visually

Perceived visual quality (= 0.574, t = 6.00, $p < 0.001$) influenced perceived total quality stronger than perceived auditory quality (= 0.296, t = 3.09, p = 0.003), (F2,58 = 34.21, $p < 0.001$, R2 = 0.54). On its own, perceived visual quality explained 47% of the variance in perceived total quality. Visual quality added another 8%.

Visual pleasantness (= 0.700, t = 8.32, $p < 0.001$) influenced total pleasantness stronger than auditory pleasantness (= 0.235, t = 2.79, p = 0.007), (F2,58 = 88.20, $p < 0.001$, R2 = 0.75). On its own, visual pleasantness explained 72% of the variance in total pleasantness. Auditory pleasantness added another 3%.

Visual eventfulness (= 0.389, t = 2.76, p = 0.008) and auditory eventfulness (= 0.397, t = 2.81, p = 0.007) influenced total eventfulness almost equally (F2,58 = 35.59, $p < 0.001$, R2 = 0.55). On its own, visual eventfulness explained 49% of the variance in total eventfulness. Auditory eventfulness added another 6%. The same was true in the reversed order.

3.5 SITE E

Table 5 presents arithmetic mean values for how the 61 participants perceived Site E totally, auditory and visually. It shows that the participants perceived the presence of artefacts as moderate. They saw a lot of nature but only heard it a little. They perceived the presence of people as moderate, and the environment as good. On average, the participants visited or passed by this site at least once every week.

Site E	Artefacts	Nature	People	Quality
Total	3.30	3.59	2.87	4.31
Auditory	3.11	2.56	2.49	3.52
Visual	3.44	3.49	2.70	4.08

Table 5 - Arithmetic mean values for how 61 participants perceived Site E totally, auditory and visually

Perceived visual quality (= 0.433, t = 4.09, $p < 0.001$) influenced perceived total quality somewhat stronger than perceived auditory quality (= 0.402, t = 3.80, $p < 0.001$), (F2,57 = 31.23, $p < 0.001$, R2 = 0.52). On its own, perceived visual quality explained 40% of the variance in perceived total quality. Visual quality added another 12%.

Visual pleasantness (= 0.546, t = 4.78, $p < 0.001$) influenced total pleasantness stronger than auditory pleasantness (= 0.305, t = 2.67, p = 0.010), (F2,58 = 49.30, $p < 0.001$, R2 = 0.63). On its own, visual pleasantness explained 58% of the variance in total pleasantness. Auditory pleasantness added another 5%.

Visual eventfulness (= 0.526, t = 5.51, $p < 0.001$) influenced total eventfulness stronger than auditory eventfulness (= 0.410, t = 4.29, $p < 0.001$), (F2,58 = 94.93, $p < 0.001$, R2 = 0.77). On its own, visual eventfulness explained 69% of the variance in total eventfulness. Auditory eventfulness added another 7%.

3.6 AGGREGATED DATA

To explore the data further, it was aggregated by calculating the arithmetic mean value for each variable and each site. This resulted in a 5×53 data matrix, where the 5 rows represented the 5 sites, and the 53 columns represented the 53 variables. Pleasantness and Eventfulness were calculated for the total, auditory and visual aspects of the 5 sites, using Eqs. 2 and 3. To investigate under what circumstance the perceived auditory quality of a site influenced its perceived total quality more than the perceived visual quality, an index of Auditory Dominance was created by Eq. 4.

$Auditory\ Dominance = r2\ Auditory - r2\ Visual$ (4)

represent the squared Pearson's coefficient of correlations of perceived auditory quality on perceived total quality, as well as of perceived visual quality on perceived total quality, respectively. Thus, the index of Auditory Dominance is positive when perceived auditory quality explains a larger proportion of variance in perceived total quality than perceived visual quality, else it is negative. This new variable was used as dependent variable in a stepwise linear regression analysis with the other variables as predictors, except the three quality measures used for calculating Auditory Dominance. In addition, Pleasantness and Eventfulness were used instead of the 12 attributes of perceived affective quality. Consequently there were 23 predictors. The only predictor of Auditory Dominance was the perceived dominance of the sound of people, for which there was a negative relationship (β = –0.959, t = –5.87, p = 0.010), (F1,3 = 34.46, p = 0.010, R2 = 0.92). Thus, perceived auditory quality influenced the perceived total quality stronger than perceived visual quality at sites where the sound of people could not be heard. Rerunning the analysis with this variable removed from the set of data revealed a more complex relationship.

Table 6 presents the regression statistics for the second regression model of Auditory Dominance. It shows that perceived auditory quality influenced the perceived total quality more than perceived visual quality when the sound of road traffic dominated a site. When controlling for this variable, the total perceived

The two terms $r2$ and $r2\ Auditory\ Visual$ presence of people contributed negatively in the model. In conclusion, the sound environment contributed more to the overall impression of a site when it was poor, and where people appeared absent.

Predictor	β	t	p	$F_{2,2}$	p	R^2
Sound of road traffic	0.671	12.77	.006	217.72	.005	0.995
Total perceived presence of people	–.511	–9.72	.010			

Table 6 – Second regression model of Auditory Dominance

Using the perceived total quality as dependent variable and the other variables as predictors showed that the main predictor was total pleasantness (= 0.999, t = 31.72, p < 0.001), (F1,3 = 1006.43, p < 0.001, R2 = 0.997). Table 7 presents the Pearson's coefficients of correlations between perceived total quality and all other variables with which it had a statistically significant relationship. The table is organized in order of the size of the correlations coefficients from the strongest to the weakest relationship. Pleasantness topped the table, followed by perceived quality. Thereafter the perceived dominance of the sound sources emerged as important predictors.

Variable	Total quality
Total pleasantness	.999**
Visual pleasantness	.988**
Auditory pleasantness	.986**
Auditory quality	.981**
Visual quality	.966**
Road traffic sound	–.948*
Natural sounds	.927*
Nature (total)	.899*
Sound of people	.887*

* $p < 0.05$ (2-tailed test of statistical significance)
** $p < 0.01$ (2-tailed test of statistical significance)

Table 7 – Variables with a statistically significant association with perceived total quality in terms of Pearson's coefficient of correlations

As evident from Table 7 above, on aggregated level, perceived auditory quality of the 5 sites influenced perceived total quality stronger than perceived visual quality. Together the perceived auditory quality (β = 1.282, t = 1.34, p = 0.313) and perceived visual quality (β = -.304, t = -0.37, p = 0.781) performed poorly as predictors of perceived total quality ($F_{1,59}$ = 26.96, p = 0.036, R^2 = 0.96). They canceled each other out. Perceived auditory quality explained 96% of the variance in perceived total quality among the 5 sites, alone.

Using the perceived security/safety as dependent variable and the other variables as predictors showed that the main predictor was to what extent the surrounding sound environment was perceived as appropriate to the site (= 0.982, t = 8.91, p = 0.003), ($F_{1,3}$ = 79.37, p = 0.003, R^2 = 0.982). Table 8 presents the Pearson's coefficients of correlations between perceived security/safety and all other variables with which it had a statistically significant relationship. The table is organized in order of the size of the correlations coefficients from the strongest to the weakest relationship. Besides to what extent the surrounding sound environment was perceived as appropriate to the site, natural sounds or auditory pleasantness had positive relationships with perceived security/safety.

Variable	Perceived security/safety
Appropriate sound environment	.982**
Natural sounds	.929*
Auditory pleasantness	.893*

* $p < 0.05$ (2-tailed test of statistical significance)
** $p < 0.01$ (2-tailed test of statistical significance)

Table 8 – Variables with a statistically significant association with perceived security/safety in terms of Pearson's coefficient of correlations

The present study investigated the relationship between perceived total, auditory and visual quality of 5 sites in and near a large urban park area in Stockholm, Sweden, located by a busy road. Previous studies of audio-visual interaction in environmental perception has suggested that the visual aspects of a place dominate over the auditory (e.g., Gifford & Ng, 1982; Kuwano, Namba, Komatsu, Kato, & Hayashi, 2001; Morinaga, Aono, Kuwano, & Kato, 2003). However, there was a large variation in this respect, suggesting that the auditory aspects might dominate over the visual at some point. The present results suggest that the auditory aspects dominate over the visual when the sound environment is poor. This occurred when the sound of road traffic dominated the impression of a site, and other sounds could not be heard. The results also suggest that perceived auditory quality is just as important as perceived visual quality, at least under the present circumstances. It is particularly interesting to note how important the quality of the sound environment was to perceived security/safety. In summary, it seems as if previous studies of audio-visual interaction in environmental perception have used a rather restricted range of stimuli.

Potential limitations in the present study include the low number of sites in the study. The study was conducted in situ, and is based on observational data with low scientific control, as opposed to experimental data. Taken together, this means that the results cannot be generalized, and can only be taken as indicative.

ACKNOWLEDGEMENT

This study was sponsored by research grant (2013-03049) from VINNOVA – Sweden's Innovation Agency. Partners in the project are Chalmers University of Technology, Stockholm University, The University College of Arts, Crafts and Design in Stockholm, the City of Stockholm, Tyréns AB, Z-block Norden AB, and the artist Mikael Pauli. Special thanks go to Björn Lundén and Linnea Hamrefors for assistance with the data collection, and to the 61 residents who volunteered for the study.

BIBLIOGRAPHIC REFERENCES

Anderson, L.M., Mulligan, B.E., Goodman, L.S., & Regen, H.Z. (1983). Effects of sounds on preferences for outdoor settings. Environment and Behavior, 15(5), 539–566.

Axelsson, Ö., Nilsson, M.E., & Berglund, B. (2010). A principal components model of soundscape perception. Journal of the Acoustical Society of America, 128(5), 2836–2846.

Gan, Y., Luo, T., Breitung, W., Kang, J., & Zhang, T. (2014). Multi-sensory landscape assessment: The contribution of acoustic perception to landscape evaluation. Journal of the Acoustical Society of America, 136(6), 3200–3210.

Gifford, R., & Ng, C.F. (1982). The relative contribution of visual and auditory cues to environmental perception. Journal of Environmental Psychology, 2, 275–284.

Kuwano, S., Namba, S., Komatsu, M., Kato, T. & Hayashi, Y. (2001). Auditory and visual interaction in the aesthetic evaluation of environment. Empirical Studies of the Arts, 19(2), 191–200.

Morinaga, M., Aono, S., Kuwano, S., & Kato, T. (2003). Psychological evaluation of waterside space using audio-visual information. Empirical Studies of the Arts, 21(2), 185–194.

Preis, A., Kociński, J., Hafke-Dys, H., & Wrzosek, M. (2015). Audio-visual interactions in environment assessment. Science of The Total Environment, 523, 191–200.

ID 1455 | ASSESSING THE PUBLICNESS OF 'PLANNED' PUBLIC OPEN SPACES PROGRESSIVELY: THE AU MODEL OF PUBLICNESS

Lavanya Jothi Venkatachalam[1], Cho Im Sik[1]
[1]National University of Singapore
a0120152@u.nus.edu ; lavanya.jvks@gmail.com

ABSTRACT: Over the last three decades, public open space literature has been critical of the increasing involvement of private sector in contemporary practices of public open space planning and development. Critiques on private actors' involvement in public open space development are largely based on the notion of a 'highly public' public domain, argued to have existed in the public open spaces such as parks and squares in pre-WW II cities of Western Europe due to strong state presence in their development. However, as counter-critiques argue, the involvement of private actors in contemporary practices of public open space development is inevitable and could also be beneficial, particularly in emerging Asian economies whose cities are majorly built by private initiatives. And, as such counter-critiques argue, a reconceptualization of publicness as a phenomenon independent of sole state participation, and policies for public open space development based on novel combinations of state, civil society, and private sector participation are strongly warranted. Along these lines, this paper presents a model and method for assessing publicness of 'planned' public open spaces empirically – termed as AU model. The proposed