

Experimental Aesthetics in the City

This research draws on and combines, experimental aesthetics and [in that context] measurement of human reaction to the city.

Research Question and Sub Questions

The principle question is: 'can human reaction to the city be measured?'. The sub-questions are:

- What are the most effective and meaningful reaction measurements?
- Could an index combining different measurements be constructed?
- Are there patterns in the measurements, suggesting 'emotional/aesthetic' consensus?
- Are there socio-economic correlations?
- Are there utility functions [for example, experienced hedonic utility¹] in the measurements?
- Do automatic measurements correlate with verbal/written narrative about the same path or location?

This is to be an empirical piece of research, though it draws on some theoretical underpinnings in aesthetics and aesthetics in a sociological setting. It conceived to be at an exploratory or pilot scale, suggesting further research pathways in this area of enquiry.

Rationale

I believe that this a worthwhile investigation because it has:

- Philosophic implications concerning consensus in environmental and architectural aesthetics and experienced hedonic utility
- Useful technical implications for open hardware style wearable computing, especially in the context of an open-source/open-hardware ethos
- Insights for the present and future of cities, whose populations increase every year
- Technical insight into how to collect and interpret data of this kind from mobile sensors
- Notions of GNH [Gross National Happiness²] and mood measurement as a aim to support mental and physical health for city dwellers
- Supplement the project for national measurement of happiness in the UK³

Within the field of urban planning [especially with regard to 'furnishing' the street], smaller pieces of the town and built environment would emerge from bottom-up initiatives rather the current large scale, push-down initiatives.

¹ Frank Ackerman et al.. 1997, Human Well-being and economic goals, Program for the Study of Sustainable Change and Development (Tufts University) p167.

² Centre for Bhutan Studies, (n.d.), <http://grossnationalhappiness.com/>

³ Allegra Stratton 2010 <http://www.guardian.co.uk/lifeandstyle/2010/nov/14/happiness-index-britain-national-mood>

Discussion and Underpinnings

According to Guy Debord⁴ '*Psychogeography* could set for itself the study of the precise laws and specific effects of the geographical environment, consciously organized or not, on the emotions and behaviour of individuals'. This, of course, sketches an ambitious project embracing experimental psychology as well as 'pure' reaction. I have chosen this as the setting for the research, since it also describes how it might develop in the future. Part of the research method is based on the idea of 'derives'⁵, journeys through the city.

Bourdieu⁶ argues that taste is correlated to social class, thus, in this context, tasteful/distasteful, pleasant/ugly and other judgements may have to take class into account as a factor. It would be interesting to seek whether there are 'core-universals' in the city, especially since the city has a multiplicity of classes, ethnicities and subcultures that need to co-exist. Does compromise mean dull, for example?

I have also selected as one of the literature starting points, a bibliography by Chandler⁷ in the area of psychological and experimental aesthetics. This shows that research in experimental aesthetics stretches back to the mid 19th century, for example, Fechner⁸ and psychophysics.

Gerda Smets⁹ presents various models and theories of arousal [in relation to colours and forms, but the models may be more universal] to aesthetic stimuli. It includes commentary on alpha rhythm blocking [as a measure of arousal], of potential use in consumer grade EEG measurements.

Finally, in the area of pure theory, to underpin and separate reaction to environment [dusty, smoky, noisy or not] from reaction to space [built environment and its adjuncts], some discussion of the philosophy of aesthetics is useful, so I have chosen Collingwood's¹⁰ essay on the philosophy of art. For example. Collingwood believes that artists, like children learning, speak and listen. However, one can argue that the modern city is constructed without any authentic 'listening', as in listening to small voices, to the grace notes, for example. The proposed research aims to provide some sustained 'listening'.

It's also interesting that, in spite of a recent revival of interest in the Situationists and their ideas, there are no hits against the term 'psychogeography' in the current British Library catalogue.

⁴ Guy Debord (n.d.) Internationale Situationniste <http://www.nothingness.org/SI/debord.html>

⁵ Guy Debord, trans. Ken Knabb 1955 La Derive <http://www.cddc.vt.edu/sionline/si/theory.html>

⁶ Bourdieu, Pierre, 1930-2002 1984 *Distinction : A social critique of the judgement of taste* London: Routledge

⁷ Chandler, Albert Richard, 1884-1957. 1979 *A bibliography of psychological and experimental aesthetics, 1864-1937* / by Albert R. Chandler and Edward N. Barnhart. New York, AMS Press

⁸ Michael Heidelberger. 2004 *Nature From Within: Gustav Theodor Fechner and his Psychophysical Worldview* Trans. Cynthia Klohr. Pittsburgh, PA: University of Pittsburgh Press,

⁹ Smets, Gerda. 1973 *Aesthetic judgement and arousal. An experimental contribution to psycho-aesthetics.* Leuven University Press

¹⁰ Collingwood, R. G. (Robin George), 1889-1943. 1994 *Outlines of a philosophy of art* Thoemmes Press

Research Method

The first part of the research defines and refines a method for gathering data. This consists of two data streams, designed to confirm [or not] each other:

- Data streams from specifically designed 'wearable computer', to measure, for example, skin resistance [electro-dermal response: EDR¹¹], blood pressure, heart rate and [perhaps] EEG from a consumer quality headset
- Surveys and written narrative provided using 'derive' style walks taken by subjects

Both sets of data come from 'derives', journeys on foot through parts of the city, though they will be planned and structured [so that data can be compared] rather than emotion-led as in Debord's original notion.

One of the basic proposals for experimental design is that the narrative and the automatic data streams are *provided by different sets of subjects*, though, ideally, they would be matched for age, health, socio-economic status. This would test whether the narrative data corresponded to any degree with unconscious reaction provided from the wearable computer.

Recording the Automatic Data Streams

This will be low cost, modular and an open-hardware, open source software design, possibly using an Arduino¹² as the central unit. The possible sensors are as follows:

- EDR or galvanic skin measurement
- Heart rate and blood pressure, adapted from existing lightweight medical supplies and interfaced
- EEG, if desirable, for example there is a gaming sensor here¹³ and there is already a simple Python library for it
- GPS for matching the 'place' to the readings

A wearable camera and eye tracking would add precision and make matching with narrative easier, but possibly provide too much data. Also, useful to know about sound, since this is a non-visible source of stress, for example. However, the apparatus should be designed to be modular and not be tightly coupled with specific sensors.

The scale of this project would probably take in one London borough and tens [as a maximum] of subjects. Once there is a clear process and initial results, it could be scaled up, if desirable.

Recording the Narrative

There are various methods for this, all of them would include a database that contains searchable and standardised narrative and geographical information [either longitude/latitude or eastings/northings] in the same record. The geographical information needs to correspond to the GPS tagging from the automatic data stream, so that narrative and data can be matched.

¹¹ Cornell EDR Sensor project, (n.d.), http://instruct1.cit.cornell.edu/courses/ee476/FinalProjects/s2006/hmm32_pjw32/index.html

¹² Arduino, (n.d.), <http://www.arduino.cc/>

¹³ Emotive EEG Sensor, (n.d.), <http://www.emotiv.com/>

Processing Results

Standard statistical methods, coefficient of correlation, confidence levels¹⁴ etc. would be used on the results where these are suitable [where there is numeric data]. Since I have also suggested that there may be a gestalt, it may be interesting to compose an index or indices of suitable measurements.

Since the narrative data is textual, some of it will have to be scored to give a numeric representation of the narrative or [for example] some of the narrative based on survey-style scored answers to questions. This needs to be defined further.

¹⁴ The R Project for Statistical Computing, (n.d.), <http://www.r-project.org/>