

The Sensory Sketch Mapping of Geographical Experiences, from a Neuro-Atypical Narrative

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Research Rationale

Geographies of space, place, scale and time are experienced in a multitude of ways; sketch mapping exercises afford a lens into the cognitive mapping, sensory processing and internalisation from the unique perspective of Autistic Spectrum Condition. The interest in studying the environmental experiences of the neuro-atypical is summed up by Pocock's quote (1972, p.115): "Relative stimulus of an environment is a function of the physiological, sociological and psychological make-up of the individual". This study integrates sketch mapping methodologies with sensory memories, map preferences and routing strategies, from a previously marginalised perspective. Thus, illuminates the potential for future research within the sub-discipline of cognitive Geography.

Discussion

The study characterises two critical personality groups from delivering a spatial intervention, the "planner" and the "improvisor", based on a route-finding exercise on printed maps, which reflect the Autistic individual's engagement with their environment. "Planner" priorities are of efficiency and absolute coverage in route planning. Conversely, the latter group placed most emphasis on their own personal interests and comfort considerations and were more impulsive when planning routes. An unexpected correlation emerged between the methods employed. The group identified as "planner" participants were more likely to produce spatial-style maps. A strong reliance on memory and ability to recognise patterns was present (Bölte, *et al.* 2007). The "improvisor" participants expressed their dependence on

Methodology

The initial research aim, "To investigate ASC individual's cognitive mapping and contribute to existing sketch-mapping typologies" was answered using the sketch mapping methodology. This involved requesting a map of the "city centre", wherever this may manifest itself for each participant. The original sketch map typologies, as identified by Pocock (1976) are illustrated in the background.

Findings

A range of Pocock's previously identified spatial and sequential style maps were produced by the participants, see background image, in addition to entirely new map types: the Lexi-Scatter Graph and the Spatio-Sequential Pattern Map (Figures 1 and 2).

visual cues: 3D maps were described as more helpful, a sentiment echoed in the sequential-style cognitive maps they produced. This helped to generate the "improvisor" label as the journeys made by these participants seemed unrehearsed and with a greater element of chance and coincidence that they would end up where they set out for by following visual and directional cues.

The second aim, "To explore the sensory mapping of ASC individuals regarding place memory and internalisation of socio-environmental stimuli" was considered in the sensory mapping exercise. This saw the addition of remembered experiences involving any of the senses to the sketch maps.

More vivid memories occur with the association of sensory stimuli. Perhaps ASC individuals rely on the accumulation of senses during the internalisation and processing of situations, which can combine to give a sense of crowding or comfort, for example. ASC individuals, who may experience heightened senses and sensory overstimulation, could rely less on individual senses and more on the combination of a variety of senses to produce an overall memory or mood of an area (Tavassoli, *et al.* 2014; Marco, *et al.* 2011)

The third research aim, "To suggest how maps can be improved to increase inclusivity, particularly for neuro-atypical individuals", answered during the map preference activity: a simple task, for which participants expressed their likes and dislikes of a range of printed attraction maps (zoos, theme parks and shopping centres).

The fourth and final aim, "To analyse various sensory influences and considerations during route planning by ASC individuals" was addressed by participants' guided commentaries on their routing strategies, which were discussed in relation to planning a route around the previously mentioned attraction maps (Salcedo-Marin, *et al.* 2013).

Conclusion

Future study should continue the cohesion of a range of Geographical methods, like sketch mapping, sensory mapping, map preference and route finding. These methods should not be viewed in isolation, but rather, the links between them could be highlighted. For example, the links between an individual's own sketch mapping style and their preference regarding the style of printed maps; or the memory of individuals regarding sensory mapping of past experiences could be linked to their future considerations regarding route influences. When making recommendations aimed at improving inclusivity, it is essential to note the nature of Autistic Spectrum Condition there was no specific map, or even map feature or angle, which all the participants favoured.

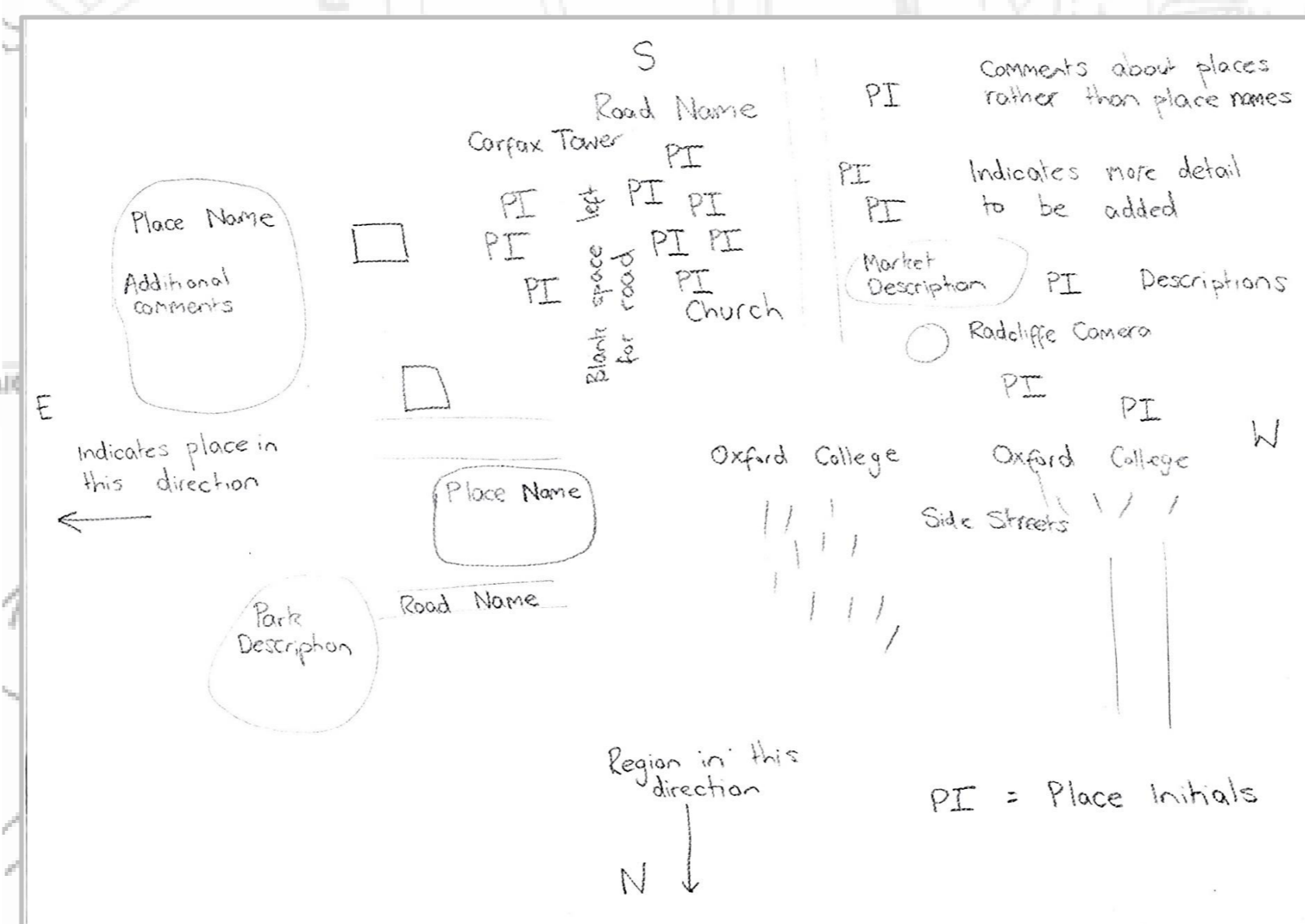


Figure 1: Proposed Lexi-Scatter Graph Map Type

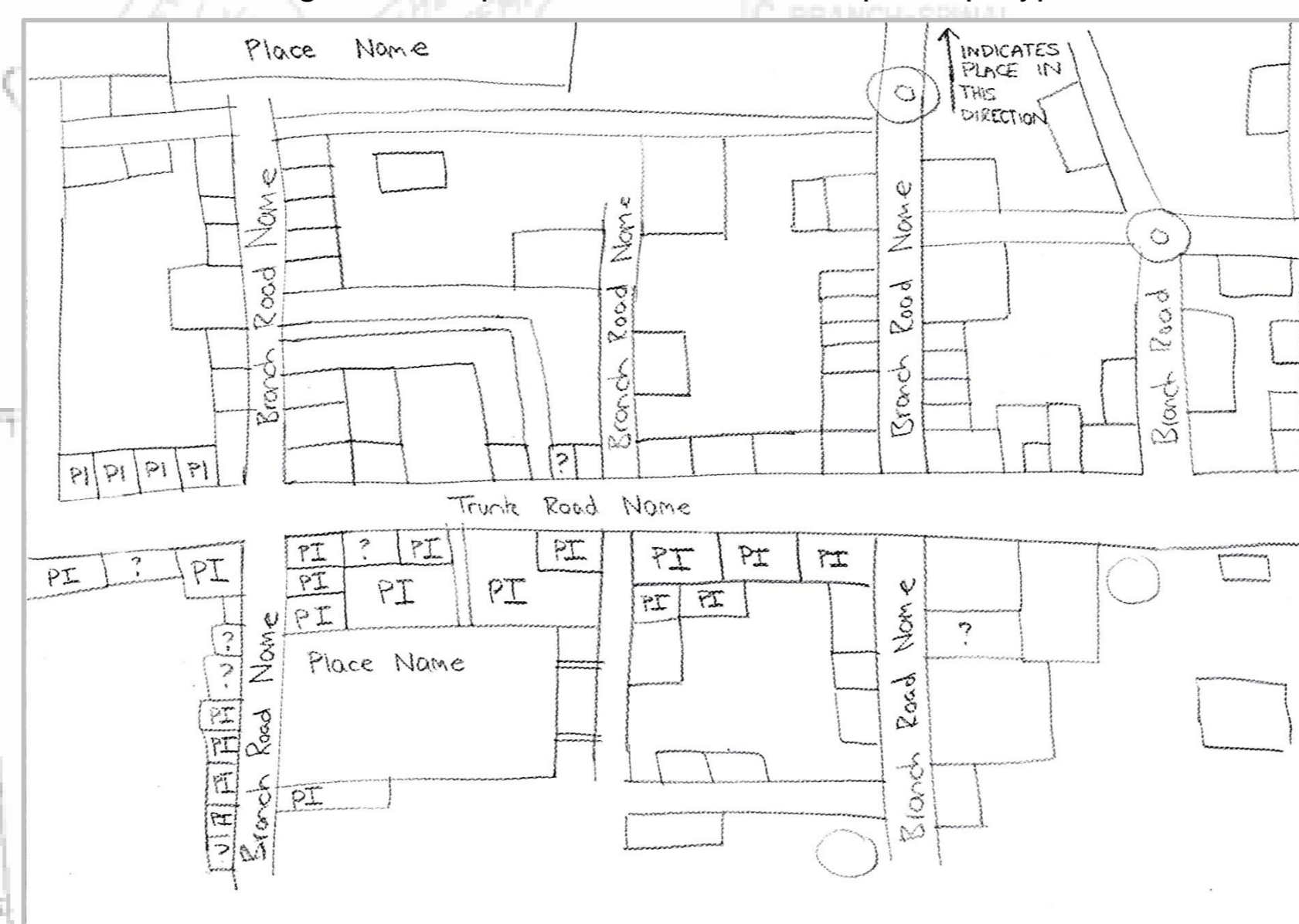


Figure 2: Proposed Spatio-Sequential Map Type

Research into the cognitive mapping of individuals is crucial in understanding routing strategies; highlighting opportunities for improving urban planning and architecture. Map design itself can contribute to stress-levels among ASC individuals, with potential to further impair planning ability (Salcedo-Marin, *et al.* 2013).

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BACKGROUND IMAGE: Pocock, D. C. D. (1976) "Some Characteristics of Mental Maps: An Empirical Study", *Transactions of the Institute of British Geographers*, 1(4), pp.498 - 499.