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Google Street View – A Useful Research Tool?

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Looking at Google Street View can be amusing – as with the image of a cow with its face blurred out by Google's algorithm for anonymising humans (see here). But this tool can help with research – as we report in a just published review in the journal "Tobacco Control". In this blog we briefly consider some of the research possibilities of this tool of relevance to public health.

Using Google Street View (GSV) for research is becoming increasingly common, as per a

recent review [1]. But in our just published work [2] we focused particularly on its potential for studying tobacco control-related issues. In general, it seems that GSV is good for identifying or evaluating larger objects (eg, large signs, buildings) but less effective for smaller ones, or those objects distant from roads.

GSV for studying tobacco control

We found two areas where GSV was useful for studying tobacco-related issues in the literature. One was smokefree signage at school grounds in NZ, with GSV being efficient and with high specificity (97%), albeit modest sensitivity (44%) because of the difficulty of seeing small signs at a distance [3]. Another was smokefree signage at hospital grounds in NZ (100% sensitivity and specificity) [4], but the sample was small.

Research on other issues also suggests some other potential areas of relevance to tobacco control research using GSV for identifying: signage/advertising/window displays (n=10 studies), retail outlets/stores (n=9), and bars/pubs (n=5) (see references in the Online Appendix to our published work [2]). This work could suggest its relevance for studying the food and alcohol environments – with one such NZ study being done for alcohol in urban streetscapes [5]. Such studies could also usefully be conducted over time, as imagery is routinely updated on GSV.

Studying neighbourhood conditions, behaviours

The literature on GSV seems to be rapidly growing – but a few other examples are as follows:

- Urban measures of “neighborhood physical disorder” (eg, litter, graffiti, and abandoned buildings) have been studied in the USA [6].
- Cycling infrastructure eg, a NZ study [7] and a study in Spain [8]. Cycling routes to school have also been studied in Belgium [9].
- Walking infrastructure (eg, these studies [10] [11], including a NZ study [7]). Some of the features at the entrances to walkways, could also potentially be studied using GSV (see this field study in NZ: [12]).
- Obesogenic neighbourhood features of the built environment, as per this Dutch study [13].
- Assessment of building features that reflect guidelines for people with disabilities (ie, as per the Americans with Disabilities Act Access Guidelines) and social activity in a rural community in the USA [14].
- In disaster preparedness in Japan – to help residents of areas at risk for natural disasters to learn escape in their “real” contexts [15]. (This would seem very relevant to NZ as well).

We have also used GSV for studying drinking fountains in public places in NZ (of modest benefit – in work yet to be published) and are currently exploring its value in studying shade provision in childrens’ playgrounds. But GSV is often only able to show features of parks and playgrounds that are near roads (ie, only a few NZ parks have “footpath views”).

Future improvements in GSV?

We suspect that if Google continues to expand “footpath views” and interior shop views it will become even more useful to researchers. Similarly if it updates its imagery more frequently (images were a median of 1.9 years old in one NZ study [3]). Improved

resolution might also help with studying small items such as litter, tobacco packs on café tables etc. But we note that in some places biologists have already used GSV to study bird nests [16], and insects with silk nests [17]. In the meantime, we suggest that NZ researchers continue to explore the utility of GSV for researching social and built environments as they relate to public health.

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