Review of: "Perceptions of 3rd Generation CPTED: Emerging Applications of Technology in Public Space Designs in Smart Cities"

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Potential competing interests: No potential competing interests to declare.

We were quite alarmed by what we read in Mamatha P. Raj and Dakshavini R. Patil's article, "Perceptions of 3rd Generation CPTED: Emerging Applications of Technology in Public Space Designs in Smart Cities." We are co-authors of the theory of 3rd Generation CPTED and one of us (Saville) is the co-founder of the International CPTED Association, and the co-developer of 2nd Generation CPTED.

There are numerous factual errors that should be corrected. First, it states C. Ray Jeffery developed CPTED in the 1960, along with Newman's defensible space. These events actually took place a decade later in the 1970s. While Jeffery's book gave CPTED its name, the intellectual pioneer who first started writing about design and crime was architectural journalist Jane Jacobs in her 1961 book. All CPTED emerges out of that work and it goes back to her. Failing to acknowledge the original pioneer and what she was telling us is disturbing.

Second, the article states that modifications of CPTED based on the Brantingham's environmental criminology led to 2nd Generation CPTED. As the co-founder of 2nd Generation CPTED (along with my colleague Gerard Cleveland), I assure you there was no connection whatsoever with environmental criminology and 2nd Generation CPTED. In fact, the development of 2nd Generation was a reaction against the target hardening, and the removal of social programming from 1st Generation CPTED (back then it was called "motive reinforcement"). Environmental criminology said nothing about the social motives that led to criminal behavior, only about the geography of crime locations. That left a huge gap in our understanding that 2nd Generation began to repair.

Third - and most damning of Raj and Patil's article – is how they muddled the description of 3rd Generation CPTED. Mateja Mihinjac and myself developed 3rd Generation CPTED building on an earlier MIT article on 3rd Generation. But we built out the theory significantly from earlier embryonic forms, like the MIT version. For example, the MIT article was not based on criminological studies on prevention, but rather environmental research about climate change. There is nothing wrong with that of course, it is a laudable objective. However, that version of 3rd Generation "proposes a 3rd Generation CPTED inculcating the evolving digital advancements of modern times [and] wishes to seek community involvement".

When we examined this closely, we found no way to reconcile those contentions with the reality of preventing crime, especially in regards to community involvement. Further, the MIT paper used technology to expand the already-developed 1st Generation CPTED concepts like natural surveillance and image. For example, it included efficient natural surveillance systems, street lights, and the maintenance of public spaces – all basic 1st Generation strategies. Traditional CPTED

practitioners will recognize these strategies as 1st Generation CPTED. They have nothing to do with 3rd Generation CPTED.

Conversely, our version of 3rd Generation CPTED advanced the theory according to some of the original principles outlined by CPTED pioneer C. Ray Jeffery in his original writings. We did that using the criminological, psychological, and environmental evidence from contemporary research.

Thus, Raj and Patil's diagram 2.3 proposes a version of 3rd Generation CPTED that does not align with the theory of 3rd Generation CPTED that we created in our 2019 study. While Raj and Patil attempt to embrace our formulation of Maslow's hierarchy of needs, Table 1 mistakes many of the actual 3rd Generation CPTED concepts with "technological aids for surveillance and cybernetically enhanced". That language is not only incorrect, it is offensive regarding the CPTED theory that we are attempting to advance.

From that point forward in the article, the authors describe their study that examines lighting systems, signage, and better surveillance. Let us be crystal clear: These have nothing to do with either 2nd Generation CPTED nor 3rd Generation CPTED. This study is more properly classified a study of technical security systems which might align with 1st Generation CPTED (if it fits into CPTED at all).

In our view, this is a technical study on surveillance technology, and it discusses how to improve that kind of surveillance in the Smart City. We have no quarrel with more advanced security, especially if scientific evidence shows crime prevention effectiveness and improved quality of life. Raj and Patil do offer some case study data supporting their hypotheses, which is fascinating reading.

But we must hold up an ethical warning flag at this point – the tendency for misuse of surveillance technologies and potential for "Big Brother" tyrannical abuses we now see in authoritarian countries around the world. The whole point of 2nd and 3rd Generation CPTED theories is to build social cohesion and enhance the social, psychological, and environmental effects that mitigate crime within the neighborhood. Without that, security technologies are little more than window dressing. It may not be a simple matter to solve these ethical implications in a single study, but the authors should at minimum outline the threats for all to see.

Professionally,

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