

Article

Health and Happiness in the New Urban Agenda: The Central Role of Public Space

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Abstract: The New Urban Agenda—the global urbanization framework agreement adopted by acclamation by all 193 countries of the United Nations—contains no fewer than eight paragraphs on the importance of public space, three of which outline its role in achieving “human health and well-being”, “attractive and liveable cities”, and “physical and mental health”. However, there is an urgent need to translate these and other quality of life aspirations contained in this landmark document into measurable targets, tools, and strategies to achieve outcomes. This paper examines the core theories that connect health and well-being to public space as reflected in the document, surveying some of the most relevant research in the field. It then analyzes the document text to identify a number of potentially useful indicators. Finally, it proposes a framework for data gathering, assessment, and iterative progress in achieving the stated goals, concluding with an overview of emerging research and practice, and proposed next steps.

Keywords: New Urban Agenda; public space; quality of life; livability



Citation: Mehaffy, M.W. Health and Happiness in the New Urban Agenda: The Central Role of Public Space. *Sustainability* **2021**, *13*, 5891. <https://doi.org/10.3390/su13115891>

Academic Editors: Marc A. Rosen and Peter Nijkamp

Received: 30 March 2021

Accepted: 20 May 2021

Published: 24 May 2021

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1. Introduction

The New Urban Agenda, the outcome document of the United Nations' 2016 Conference on Housing and Sustainable Urban Development—more commonly known as Habitat III—was, in December of that year, adopted by consensus by all 193 member states of the United Nations. That historic document thereby establishes an important, possibly unprecedented, international agreement on the shared goals of urbanization and urbanism through the next two decades, and into the future [1]. As such, the goals of the New Urban Agenda, and the prospects of achieving them, are now major concerns of policy makers, researchers, and practitioners.

The related subject of this paper, as of this journal's Special Issue, is the topic of health and happiness in cities—surely core considerations for any human settlement. One must, of course, be clear on working definitions of such terms, particularly a term like “happiness”, whose usage and meaning has shown such clear variation [2]. There was, however, significant work already by UN-Habitat on related goals leading up to the New Urban Agenda, for example in the 2012 City Prosperity Index.

Although the word “happiness” does not appear explicitly in the New Urban Agenda, the word “health” appears no fewer than 29 times, and it often appears within phrases containing synonyms of happiness, including “healthy, fulfilling lives”, “physical and mental health”, “health and quality of life”, and “human health and well-being”. If one applies a dictionary definition of happiness as “a state of well-being” [3] then we can accept the working premise that human happiness is indeed a goal of the New Urban Agenda, along with human health—and indeed, the health of the ecosystems on which human health depends as well.

There is also a focus in the New Urban Agenda on “liveability”, another closely related concept appearing in four separate places within the document, and “quality of life”, another related concept appearing in six separate places. Indeed, the first section of

the document makes it clear that “quality of life for all” is a central goal of the New Urban Agenda, along with ambitious sustainability goals.

What is also notable about the New Urban Agenda is that no fewer than eight separate paragraphs focus upon the importance of public space [4]. Several of these paragraphs tie public space specifically to “human health and well-being”, “attractive and liveable cities”, and to “physical and mental health”. Others tie public space to more indirect factors contributing to health and happiness, including “social cohesion”, “economic exchange”, “social and economic development”, “human development”, “resilience”, “informal markets and local commerce”, and “promoting walkability and cycling” [1] (pp. 9; 13; 4; 9; 11; 67; 100; 18).

What conclusions can be drawn about the relationship between public spaces and health and happiness—and human well-being more broadly—as established in the New Urban Agenda? Further, how can these and other quality of life aspirations be translated into measurable targets, tools, and strategies to achieve the desired outcomes? In particular, what frameworks for data gathering and assessment must be established to that end—notably in an era of promising new methodologies for engaging “Big Data” analysis? This paper will examine these questions, and formulate a tentative conclusion for further development.

2. Tracing the Threads of Public Space Theories in the New Urban Agenda

In order to document the theoretical framework of public space in the New Urban Agenda and its connection to health and happiness, it is necessary to examine key historic inputs into the formation of the document. One of these inputs was the “Urban Thinkers’ Campus”, whose purpose was described as:

... [to] bring together urban thinkers and established UN-Habitat partner organizations and constituencies to reflect on current urban challenges and trends and to propose a new urban paradigm. The new paradigm would be a contribution to the New Urban Agenda, delivered at the United Nations Conference on Housing and Sustainable Urban Development (Habitat III) in 2016. [5]

The Urban Thinkers’ Campus was created by the World Urban Campaign, a partnership platform sponsored and coordinated by UN-Habitat “to place the urban agenda at the highest level in development policies” and “to share best practices and innovative ideas ... work(ing) with national governments ... ” [6].

One of the Urban Thinkers Campus events that played a key role in formulating this “new paradigm” and the language on public space specifically, was the Future of Places conference series [7]. This four-year series brought together over 1500 researchers, practitioners, officials, and activists, representing more than 700 organizations, 275 cities, and 100 countries from around the world [8]. Among them were prominent academics noted for their research on public space, including Setha Low, Ali Madanipour, Vikas Mehta, Richard Sennett, Saskia Sassen, and others. The series generated some of the specific language on public space contributing to the New Urban Agenda through its “key messages”, as described by Laura Petrella, Chief of Planning, Finance and Economy for UN-Habitat:

Public space in particular has a very important position or role in the New Urban Agenda ... all of the process of the Future of Places conference has built quite a lot of understanding and collaborative mechanism, and I think that process was so fundamental to influence the global thinking on the issue of public space. [9]

Among the prominent thinkers whose influence was palpable in this process was the urban journalist Jane Jacobs, whose ideas even feature on the conference’s main web page [8]. As the conference speaker recordings demonstrate, Jacobs’ work was discussed by several speakers, notably including Richard Sennett. In a working paper he shared with conference attendees, he described Jacobs’ emphasis on public space as an essential component of human contact:

... Jacobs argued that places should become both dense and diverse, either in the form of dense streets or packed squares; such physical conditions can prompt the unexpected encounter, the chance discovery, the innovation which is the genius loci of cities. [10]

Sennett's work reflects an evolving understanding of public space as a fundamental platform for the creation of human benefits within the city, including not only health and happiness, but economic and cultural development, and the expansion of the wealth of goods and of ideas which is the basis for health and happiness. This view was echoed by Luis Bettencourt, former researcher for the Santa Fe Institute, and now Director of the Mansueti Institute for Urban Innovation at the University of Chicago. In an interview with the Academic Chair of the Future of Places, Bettencourt outlined the evolving understanding of the role of public space:

Public space is central. In many ways, you can think of cities ultimately as really a bunch of strangers coming together to do difficult things—things that are very contested, and require continuous interaction, and a set of rules and spaces that allow that to happen. Public spaces are a very visible and very important part of where those encounters and those negotiations occur, and both serendipities and then also organizations come to be. I think that in the work that you're doing, but also increasingly as new ways of thinking about cities, we think about public spaces for what they do, not just as places that we build in certain specific ways ... but in terms of their quality, how they bring people together, how people feel in them, and how open to different kinds of people and different kinds of interaction they are. [11]

Bettencourt also acknowledged the outsized role of Jane Jacobs' thought in understanding the central role of public space in promoting the health and well-being of a city's inhabitants. In a paper titled "The kind of problem a city is"—the same title as the insightful last chapter of Jacobs' landmark 1961 *The Death and Life of Great American Cities*—Bettencourt described the fundamental role of connectivity in human development, not only as a matter of fairness, but of benefit to everyone's economic interest too:

"... the view of cities in terms of social networks emphasizes the primary role of expanding connectivity per person and of social inclusion in order for cities to realize their full socio-economic potential. In fact, cities that for a variety of reasons (violence, segregation, lack of adequate transportation) remain only incipiently connected will typically underperform economically compared to better mixing cities". [12]

3. Public Space as the Platform for Self-Organizing Socio-Spatial Web-Networks

There is in Bettencourt's work, as in Jacobs', the pervasive idea of public space as an evolving, interconnected web-network structure. This too can be found in the New Urban Agenda, e.g., in Paragraph 67, "We commit ourselves to promoting the creation and maintenance of well-connected and well-distributed *networks* [emphasis added] of open, multipurpose, safe, inclusive, accessible, green and quality public spaces ... " [1] (p. 13).

For Jacobs, public space forms a kind of continuous urban fabric, a fundamental connective tissue that she referred to as "general land", in contrast with the "special land" of private buildings and other spaces inaccessible to the pedestrian public, which creates barriers to their fluid movement [13]. There must be an intimate relationship between these two types of land, she said, and it must remain in balance, without large disruptions. Such disruptions can cause the kinds of "incipient connectivity" described by Bettencourt, with a number of potential negative consequences for human well-being. Jacobs described a number of these problems, including the notion of a "border vacuum"—a zone surrounding a barrier that produces economic and social decline—and, one could add, a decline in health and happiness [13] (p. 257).

Some of these consequences for health and happiness—and even for life and death—were described by the sociologist Eric Klinenberg, in his seminal work on the Chicago heatwave of 1995. Klinenberg observed a critical connection between the survival, health, and well-being of residents during this crisis, and the presence, or absence, of what he

termed “social infrastructure”, the web of connections that existed across public and semi-public spaces, including pavements or sidewalks:

“The key difference between neighborhoods like Auburn Gresham [where more people survived] and others that are demographically similar turned out to be the sidewalks, stores, restaurants, and community organizations that bring people into contact with friends and neighbors”. [14]

Public space, then, plays a key role not only in health, happiness, and well-being, but, when it comes to urban resilience, very possibly in life and death.

Moreover, for Klinenberg, there is an intimate relationship between the web network of social relationships in a neighborhood, and the physical public spaces over which they occur, together with the private spaces they connect. Social infrastructure has a physical as well as a social component.

It can be seen then that the theme of a complex web network of social and spatial connections looms large in Klinenberg’s thinking, as it does in Bettencourt’s and Jacobs’. That insight is also central to the work of Bruno Latour, whose actor-network theory (ANT) has been influential in sociology and other fields [15]. The “actors” in Latour’s scheme are not simply people, but may be institutions or other elements—and indeed, they may be physical spaces or other objects. Moreover, there is a dynamic and evolutionary interaction going on between the different actors, including the people and their places. As Edelenbos et al. [16] have noted, actor-network theory, “accords specifically well with an understanding of cities as complex, adaptive, self-organizing systems”.

Crucially, an actor network is not a static thing, nor is it an artifact produced by technical expertise. Instead, it is co-produced, at least to some degree, by the people themselves. One may consider, for example, a simple picnic blanket set out in a park. Technically, this park is a public space; and yet, the act of setting out the blanket socially produces a kind of ad hoc private space. The rules for this private space are usually not formal, but rather are tacit. If a stranger were to perch on a part of the blanket, it would likely violate these tacit rules, making all involved quite uncomfortable, and possibly resulting in an altercation—even though, from a formal and legal point of view, the space in the park is public.

The picnic blanket is only one example of such a socially produced space. To that one could add myriad other examples: say, children gathering in an abandoned lot to create an effective pocket park; homeless people forming a tent camp under a bridge, with quasi-public and private spaces; a festival in the open desert, with tents and campers; a sidewalk (pavement) café taking up a former parking stall in the street. Many if not most public and private spaces have this socially produced character at least in part, as has been noted by many authors (e.g., Lefevre [17]; Low [18]; Gottdiener [19]).

The aforementioned Klinenberg has also argued that social production can also account for the opposite of healthy public space, and in fact the “degradation and fortification of public space”. In his paper “Dying Alone: The Social Production of Urban Isolation” [20], he noted that this was one of four “key conditions” that he identified as the cause of significantly greater numbers of deaths in Chicago and elsewhere.

In these and other thinkers’ work, it is within public spaces, and the adjoining private spaces that they connect, that people, their places, their institutions, and their conceptions, all interact within a system—that is, within a socio-spatial web network. The understanding of this complex adaptive structure, as outlined by these and other authors, has been described by Mehaffy and Salingaros [21] as an emerging and coalescing “place network theory”.

Within such a “place network”, according to the theory, people are constantly interacting with their public and private spaces, modifying them, making them more or less connective, and more or less protective, by opening doors, closing windows, drawing blinds, and so on. This transformation goes on at many scales of space and time, including the scale of hours or days (opening a door or closing a window in a home, setting out a

picnic blanket in a park) or years or centuries (remodeling a home, building new buildings, or gradually transforming a city).

What this means is that the co-production of public space is a critical component of its quality, and of its capacity to support human well-being, health, and happiness. Those urban environments that exhibit such a rich set of room-like places and connections, capable of being transformed by the residents, and by community-led groups, are among the most popular and best-loved ones—and very likely, given the implications of Klinenberg’s work and others’, among the healthiest.

There is also an important component of capability in the co-production of public space, as described by Nussbaum and Sen [22]. As Sen described it, capability is an “approach to well-being and advantage in terms of a person’s ability to do valuable acts or reach valuable states of being” [22] (p. 30). The power to shape one’s environment is clearly in this sense the power to reach a valuable state of being (comfort, security, control, health, etc.) and to do an act that one finds valuable—that is, a “capability” in this sense.

This, then, is the essential role of public space in promoting health, happiness, and well-being: to connect people to one another, to their resources, and to opportunities within the city, while also limiting connectivity so as to keep people safe and comfortable. With too much unmodulated contact, one has no privacy, or one is in danger, or one is under stress—in a word, unhappy. However, with too little contact, one is isolated, or unable to access essential resources, or lonely—once again, unhappy. Moreover, those urban places that afford to residents and to community-led groups the capacity to generate a complex and self-organizing mix of connections and protections, are best positioned to produce urban vitality and human flourishing.

4. The Experience of Public Space: Aesthetics, Health, and Well-Being (and Happiness)

Another key question regarding the capacity of public spaces to promote well-being, health, and happiness, is the role of their aesthetic characteristics. Although such aesthetic properties are often dismissed as too subjective, recent developments in neuroscience, environmental psychology and other fields have given the topic a new relevance [23]. While this is a relatively young and dynamic field, and a full discussion of it is beyond the scope of this paper, its importance warrants some discussion in this context.

The picture that is emerging is that aesthetic perception is rooted in human evolutionary history, and it plays a role in the human ability to find places that are more likely to promote health and happiness. In turn, aesthetic enjoyment—the experience of beauty—seems to provide an important function for the brain in its own right. Semir Zeki, a neurobiologist at University College London, has surveyed neurological research (which includes notable work by his own team), and concluded that the perception of beauty in the environment “is not a luxury, but an essential ingredient in nourishing the emotional brain” [24]. Research in other fields has shown that the perception of beautiful places (including “biophilic” places with natural vegetation) lowers stress in the body, improves health and well-being, and, as found in one seminal study, can even measurably shorten recovery time from surgery [25]. Clearly, then, such an experience is a component of our health and happiness in cities, and it needs to be assessed accordingly.

How then can planners and designers overcome the subjective nature of the experience called “beauty”, which poses an evident barrier to agreement on preferred actions [26]? If health and happiness are to some degree dependent upon aesthetic characteristics, how can these be assessed and promoted?

If such aesthetic characteristics are all “in the eye of the beholder”, then it would seem that we will not be able to assess their impacts upon well-being, health, and happiness. Worse for some, this might mean the infringement of the rights of some to enjoy varying aesthetic values, as those are crowded out by the impositions of others, or by the selective judgments of “experts”.

However, the work of Daniel Kahneman and his colleagues on well-being demonstrates that it can indeed be measured, as can the factors that contribute to it [27]. As

Kahneman reports, “Robust and interpersonally consistent relationships have been observed between subjective measures of experience and both specific measures of brain function and health outcomes. In part because of these findings, economic research using subjective indicators of happiness and life satisfaction has proliferated in recent years” [27] (p. 429).

Similar findings in neuroscience, environmental psychology, mathematics, and other fields point toward definable mathematical characteristics in the built environment as most likely to produce reported experiences of beauty. These phenomena, according to Zeki, are rooted in the evolution of our brain structures [28,29]. “Mathematical principles of symmetry, harmony and proportion... are part of the cognitive apparatus of all brains” and these principles “have to be respected” in order for a structure such as (say) a human face to be perceived as beautiful [24] (p. 19).

Zeki points to one attribute that has an ancient relationship to architecture: the property of symmetry [30]. Here, “symmetry” does not refer only to mirror or reflectional symmetry, but to many other kinds, including translational, rotational, scaling (e.g., “fractals”), information symmetries, and combinations or compound symmetries, as well as various forms of “symmetry-breaking”. Recent developments in mathematics and physics (as well as the evidence from neuroscience) are putting the ancient topic of environmental symmetry in a very modern light—and highlighting an important role for health and happiness [31]. There may even be a “symmetry deficit disorder” that occurs when environments do not have a sufficient component of symmetry to provide what Zeki referred to as the “essential ingredient in nourishing the emotional brain”.

The research also suggests a relation between the concept of public space as the platform for an essential socio-spatial network, and the concept of symmetry as an essential component of environmental experience. While this is an immature area of research, it follows from the work of Latour, Bettencourt, and others, that the processes of forming these networks (through social production and other means) also produce environmental symmetries of various kinds. For example, the demarcation of the entry with two potted plants establishes a reflectional symmetry, while the introduction of vegetation on a hedge establishes scalar or fractal symmetries, the reproduction of a seating group on a pavement outside of a café establishes a translational symmetry, and so on. In turn, these structures improve the legibility of the human environment, and the ability to perceive its order, making it more likely that it will be experienced as beautiful, pleasurable, and restorative of health and well-being (and very likely happiness, other things being equal).

These findings would seem to have important consequences for designers. While there is still enormous scope for artistic creativity and expression, it seems that there is a duty to assure that the structures created will still contribute to health and happiness, according to the research evidence. That implies a new way of looking at the needs of people in urban environments—not as subjects for artistic experimentation who should be grateful for the creative gifts of designers, but as clients under professional care, for whom there is a professional “duty of care” not to harm, but indeed to improve health and happiness.

This discussion can only suggest the outlines of a burgeoning field of research and theory, pointing to remarkable new insights about the structure of urban environments and their impacts upon health and happiness. Some of these are purely structural, such as the ability to connect to resources and to other social interactions. Some are more experiential, having to do with the cognitive and aesthetic attributes of the human environment. However, all of them are structurally related, as the new research is revealing. Taken together, these insights enrich a useful working “place network theory,” and offer an exciting new avenue of further exploration and progress for city livability.

5. Detailed Analysis of the New Urban Agenda, Identifying Relevant Indicators and Metrics for Measurement and Mapping

How, then, can these structural factors promoting city health and happiness be measured, so as to allow the pursuit of improvement toward the goals of the New Urban

Agenda? It is possible, though tedious, to cull through each paragraph addressing public space in the New Urban Agenda, and to identify the key words and phrases that specify indicators and metrics to be used for measurement and mapping, as a crucial component of the implementation process.

The methodology is simple. One may take each paragraph that addresses public space, and identify specific terms that imply indicators and metrics. For example, where Paragraph 13 refers to “safe . . . public spaces”, one may specify the implied indicators: “Measure and map crime, injury rates, perceived safety”.

The Tables 1–7 lay out all of the paragraphs, together with the identified indicators and metrics, paragraph by paragraph—a total of fifty.

Table 1. General demographic statistics.

Text from the New Urban Agenda:
13. We envisage cities and human settlements that: . . . (b) Are participatory, promote civic engagement, engender a sense of belonging and ownership among all their inhabitants, prioritize safe, ¹ inclusive, ² accessible, ³ green ⁴ and quality ⁵ public spaces that are friendly for families, ⁶ enhance social ⁷ and intergenerational interactions, ⁸ cultural expressions ⁹ and political participation, ¹⁰ as appropriate, and foster social cohesion, ¹¹ inclusion ² and safety ¹ in peaceful and pluralistic societies, where the needs of all inhabitants are met, recognizing the specific needs of those in vulnerable situations;
36. We commit ourselves to promoting appropriate measures in cities and human settlements that facilitate access for persons with disabilities footnotesize on an equal basis with others, to the physical environment of cities, in particular (. . .) to public spaces, ³ public transport, housing, education and health facilities, public information and communication (including information and communications technologies and systems) and other facilities and services open or provided to the public, in both urban and rural areas.
Indicators and metrics for measurement and mapping:
Within streets and other public spaces . . .
¹ Measure and map crime, injury rates, perceived safety
² Measure and map population and cultural diversity, perceived inclusiveness
³ Measure and map connectivity, barriers, distances
⁴ Measure and map urban greenery quantity and distribution
⁵ Measure and map perceived quality, conjoint analysis
⁶ Measure and map presence of families, survey of family preferences
⁷ Measure and map social capital
⁸ Measure and map presence of intergenerational mix
⁹ Measure and map arts and cultural activities
¹⁰ Measure and map organized and informal political activities
¹¹ Measure and map population diversity, conflict levels

Table 2. Street and public space geometries.

Text from the New Urban Agenda:
37. We commit ourselves to promoting safe, ¹ inclusive, ² accessible, ³ green ⁴ and quality ⁵ public spaces, including streets, ¹² sidewalks ¹³ and cycling lanes, ¹⁴ squares, ¹⁵ waterfront areas, ¹⁶ gardens ¹⁷ and parks, ¹⁸ that are multifunctional areas ¹⁹ for social interaction ⁷ and inclusion, ² human health ²⁰ and well-being, ²¹ economic exchange ²² and cultural expression ⁹ and dialogue ²³ among a wide diversity of people and cultures, ² and that are designed and managed to ensure human development and build peaceful, inclusive and participatory societies, as well as to promote living together, connectivity ²⁴ and social inclusion. ²
Indicators and metrics for measurement and mapping:
Within streets and other public spaces . . .
¹² Measure and map street patterns, areas and connectivity
¹³ Measure and map sidewalk patterns, widths, areas and connectivity
¹⁴ Measure and map cycling lane routes, connectivity
¹⁵ Measure and map squares, sizes, distributions
¹⁶ Measure and map waterfront developments, sizes, distributions
¹⁷ Measure and map gardens, sizes, distributions
¹⁸ Measure and map parks, sizes, distributions
¹⁹ Measure and map degree of multi-function in all public spaces
²⁰ Measure and map health indicators
²¹ Measure and map well-being indicators
²² Measure and map economic exchange, markets, vending
²³ Measure and map indicators of political or civic dialogue
²⁴ Measure and map connectivity of public space systems

Table 3. Economic factors.

Text from the New Urban Agenda:
53. We commit ourselves to promoting safe, inclusive, accessible, green and quality public spaces as drivers of social ⁷ and economic ²⁵ development, in order to sustainably leverage their potential to generate increased social ⁷ and economic ²⁵ value, including property value ²⁶ , and to facilitate business and public and private investments ²⁷ and livelihood opportunities ²⁸ for all. ²⁹
Indicators and metrics for measurement and mapping:
Within streets and other public spaces . . .
²⁵ Measure and map economic development around public spaces relative to baseline
²⁶ Measure and map property price changes relative to baseline
²⁷ Measure and map investment activity adjacent to public spaces
²⁸ Measure and map employment growth adjacent to public spaces
²⁹ Measure and map income distribution mix, GINI coefficient changes for affected populations

Table 4. Qualitative factors.

Text from the New Urban Agenda:
67. We commit ourselves to promoting the creation and maintenance of well- connected ³⁰ and well-distributed networks of open, multipurpose, ¹⁹ safe, ¹ inclusive, ² accessible, ³ green ⁴ and quality ⁵ public spaces, to improving the resilience of cities to disasters and climate change, ³¹ including floods, drought risks and heatwaves, to improving food security and nutrition, ³² physical and mental health, ²⁰ and household and ambient air quality, to reducing noise ³³ and promoting attractive ³⁴ and liveable ³⁵ cities, human settlements and urban landscapes and to prioritizing the conservation of endemic species. ³⁶
Indicators and metrics for measurement and mapping:
Within streets and other public spaces . . .
³⁰ Measure and map connectivity within the overall system of streets and paths, including intersection density, average lengths, space syntax values
³¹ Measure and map permeable cover, floodwater storage capacity, shading and tree cover, albedo, water consumption relative to availability
³² Measure and map presence of allotment gardens, edible gardens
³³ Measure and map noise levels, mitigation by buffers, vegetation, masking, etc.
³⁴ Measure and map average user evaluations of attractiveness
³⁵ Measure and map average user evaluations of livability
³⁶ Measure and map presence of endemic species conservation programs and their success

Table 5. Segregation, gentrification, retrofitting, and regeneration.

Text from the New Urban Agenda:
97. We will promote planned urban extensions and infill, prioritizing renewal, regeneration and retrofitting of urban areas, as appropriate, including the upgrading of slums and informal settlements, ³⁷ providing high-quality buildings ³⁸ and public spaces, ³⁴ promoting integrated and participatory approaches involving all relevant stakeholders and inhabitants and avoiding spatial and socioeconomic segregation ³⁹ and gentrification, ⁴⁰ while preserving cultural heritage ⁴¹ and preventing and containing urban sprawl. ⁴²
109. We will consider increased allocations of financial and human resources, ³⁷ as appropriate, for the upgrading and, to the extent possible, prevention of slums and informal settlements, with strategies that go beyond physical and environmental improvements to ensure that slums and informal settlements are integrated into the social, economic, cultural and political dimensions of cities. These strategies should include, as applicable, access to sustainable, adequate, safe and affordable housing, basic and social services, and safe, ¹ inclusive, ² accessible, ³ green ⁴ and quality ⁵ public spaces, and they should promote security of tenure and its regularization, as well as measures for conflict prevention and mediation.

Table 5. Cont.

Indicators and metrics for measurement and mapping:
Within streets and other public spaces . . .
³⁷ Measure and map public space improvements in slums and informal settlements, where present
³⁸ Measure and map average user evaluations of building attractiveness, quality
³⁹ Measure and map segregation by population and by income
⁴⁰ Measure and map gentrification trends (changes to above)
⁴¹ Measure and map ratio of heritage conservation to heritage destruction
⁴² Measure and map changes to street patterns and densities in urban peripheries (see #30)

Table 6. Affordability, crime prevention.

Text from the New Urban Agenda:
99. We will support the implementation of urban planning strategies, as appropriate, that facilitate a social mix through the provision of affordable housing options ⁴³ with access to quality basic services and public spaces for all, ² enhancing safety and security and favouring social and intergenerational interaction and the appreciation of diversity. We will take steps to include appropriate training and support ⁴⁵ (. . .) for service delivery professionals and communities in (. . .) areas affected by urban violence. ⁴⁴
Indicators and metrics for measurement and mapping:
Within streets and other public spaces . . .
⁴³ Measure and map housing affordability, changes, and increase of new affordable units
⁴⁴ Measure and map presence of urban violence, including gender-based violence (see also #1)
⁴⁵ Measure and map presence of programs to mitigate urban violence as well as their measured effectiveness.

Table 7. Urban form, mobility, social capital.

Text from the New Urban Agenda:
100. We will support the provision of well-designed networks of safe, accessible, green and quality streets and other public spaces that are accessible to all and free from crime and violence, including sexual harassment and gender-based violence, ⁴⁴ considering the human scale, ⁴⁶ and measures that allow for the best possible commercial use of street-level floors, ⁴⁷ fostering both formal and informal local markets and commerce, ²² as well as not-for-profit community initiatives, ⁴⁸ bringing people into public spaces ⁴⁹ and promoting walkability and cycling ⁵⁰ with the goal of improving health and well-being. ^{20,21}
Indicators and metrics for measurement and mapping:
Within streets and other public spaces . . .
⁴⁶ Measure and map scale of plots, streetscape features, door and window size and frequency
⁴⁷ Measure and map activation of street-level floors for retail or other commercial uses
⁴⁸ Measure and map presence and frequency of not-for-profit enterprises
⁴⁹ Measure and map population density of public spaces (average and measured over time)
⁵⁰ Measure and map walking and biking scores (see WalkScore et al.)

6. Discussion

Although fifty indicators may seem a daunting number, two points should be kept in mind. One is that there is partial overlap and repetition among the indicators, and some of them are likely able to be consolidated. Others may be inferred through simpler proxies—for example, gentrification trends may be measurable through housing price changes, and so on.

The other point is that developments in big data and smart cities are rapidly accelerating, and it is now routine to see the aggregation and integration of many indicators, indeed far more than the fifty examined here. What is needed is an aggressive new effort

to identify and collate the indicators, and to explore the data sources by which they may be measured, mapped, and tracked for progress.

One may also note that the proto-indicators above can be roughly grouped into three categories: those that specify direct connective and structural relationships; those that seek diagnostic findings for urban problems, like crime and violence; those that seek more direct evidence of impacts on health, well-being, and livability including aesthetic factors. Among the latter category, we can note:

- 5 Measure and map perceived quality, conjoint analysis
- 20 Measure and map health indicators
- 21 Measure and map well-being indicators
- 34 Measure and map average user evaluations of attractiveness
- 35 Measure and map average user evaluations of livability
- 38 Measure and map average user evaluations of building attractiveness, quality

These qualitative and aesthetic factors may be more challenging to assess, and they may require “intersubjective assessments” including surveys. The development of in-field neurological diagnostics (eye-tracking devices, portable MRIs, and the like) offers another complementary way of assessing outcomes and guiding practice. For example, recent work using virtual reality headsets has provided clearer findings, with cleaner data, about user experiences in different kinds of environments containing different aesthetic properties [32].

Therefore, all these “proto-indicators” must be developed further, so as to be useful to guide policy and practice. Moreover, measurement alone is not enough to guide practice. There is an urgent need for tools and strategies to make the interventions toward the improvements that are needed. These must be guided by theory that is sufficiently grounded in practice, so as to be useful in its guidance. As this discussion has suggested, there are new frontiers of theory and research that need to be further developed.

The analogy of germ theory in medicine is a useful comparison. So long as the theory of humors guided medical practice, the tools and strategies that it indicated—leeches, bloodletting, and the like—were doomed to fail. Guided by the right theory, however, germ theory practitioners were able to search for the causative pathogens, and then, in increasing numbers of cases, apply the appropriate antibiotics and other measures to produce results. One is reminded of Lewin’s remark that “there is nothing so practical as a good theory” [33].

7. Conclusions

The New Urban Agenda—and the new advancements in measuring and promoting well-being, health, and happiness that it reflected—represents a historic landmark achievement. At the same time, for further progress to be made, there must be clear connections between theory, goals, measurements, and outcomes. There must be policy support and alignment at many scales, as well as development of new evidence and new tools. This must come not only from experts but from community-led initiatives and stakeholder engagements, and must be translated into specific tools and building-level practices. Encouraging progress has already been made by many organizations (one example being the International WELL Building Institute certification standard).

This paper proposed to contribute to that process of tracing the connections, focusing upon the specific goals of health and happiness as they relate to public space. The results, though only the beginning of a much longer process, show that there is indeed a connecting line to be found in this case. The same connections likely can—and should, surely—be traced for other goals of the New Urban Agenda, and other framework agreements for the improvement of human well-being, health, and happiness into the future.

Funding: The author is grateful for the research support of the Ax:son Johnson Foundation of Stockholm, Sweden.

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Data Availability Statement: Not applicable.

Conflicts of Interest: The author declares no conflict of interest.

References

1. United Nations. *Resolution Adopted by the General Assembly on 23 December 2016: 71/256, "New Urban Agenda"*; United Nations: New York, NY, USA, 2017.
2. Chekola, M.G. *The Concept of Happiness*; University of Michigan: Ann Arbor, MI, USA, 1974; Available online: https://worlddatabaseofhappiness-archive.eur.nl/hap_bib/freetexts/chekola_mg_1974.pdf (accessed on 28 February 2021).
3. Merriam-Webster. Happiness (Definition). Merriam-Webster Online Dictionary. Available online: <https://www.merriam-webster.com/dictionary/happiness> (accessed on 28 February 2021).
4. Mehaffy, M.; Elmlund, P.; Farrell, K. Implementing the New Urban Agenda: The central role of public space. *Urban Des. Int.* **2019**, *24*, 4–6. [CrossRef]
5. World Urban Campaign. Urban Thinkers' Campus. Available online: <https://www.worldurbancampaign.org/urban-thinkers-campus> (accessed on 28 February 2021).
6. UN-Habitat. World Urban Campaign. Available online: <https://unhabitat.org/world-urban-campaign> (accessed on 28 February 2021).
7. Mehaffy, M.; Haas, T.; Elmlun, P. Public space in the new urban agenda: Research into implementation. *Urban Plan.* **2019**, *4*, 134–137. [CrossRef]
8. Elmlund, P. Future of Places: The Global Forum about Public Space. Available online: www.futureofplaces.com (accessed on 28 February 2021).
9. Petrella, L. Interview, 10 February 2018 with Chief of Planning, Finance and Economy, UN-Habitat. Available online: <https://www.youtube.com/watch?v=kjdignNZw5U&t=6s> (accessed on 28 February 2021).
10. Sennett, R. The Open City. Working Paper. Available online: <http://www.richardsennett.com/site/SENN/UploadedResources/The%20Open%20City.pdf> (accessed on 28 February 2021).
11. Bettencourt, L.M.A. Interview. Available online: <https://www.youtube.com/watch?v=z2sZvYqVcRc&t=1s> (accessed on 28 February 2021).
12. Bettencourt, L.M.A. The Kind of Problem a City Is Santa Fe Institute Working Paper 13-03-008. Available online: <http://www.santafe.edu/media/workingpapers/13-03-008.pdf> (accessed on 28 February 2021).
13. Jacobs, J. *The Death and Life of Great American Cities*; Random House: New York, NY, USA, 1961.
14. Klinenberg, E. Adaptation. *The New Yorker*. 7 January 2013. Available online: <https://www.newyorker.com/magazine/2013/01/07/adaptation-eric-klinenberg> (accessed on 28 February 2021).
15. Latour, B. On actor-network theory: A few clarifications. *Soziale Welt* **1996**, *47*, 369–381.
16. Edelenbos, J.; Hirzalla, F.; van Zoonen, L.; van Dalen, J.; Bouma, G.; Slob, A.; Woestenburger, A. Governing the complexity of smart data cities: Setting a research agenda. In *Smart Technologies for Smart Governments*; Bolívar, R., Pedro, M., Eds.; Springer: New York, NY, USA, 2018; pp. 35–54.
17. Lefebvre, H. *The Production of Space*; Blackwell: Oxford UK, 1996.
18. Low, S.M. Spatializing culture: The social production and social construction of public space in Costa Rica. *Am. Ethnol.* **1996**, *23*, 861–879. [CrossRef]
19. Gottdiener, M. *The Social Production of Urban Space*; The University of Texas Press: Austin, TX, USA, 2010.
20. Klinenberg, E. Dying alone: The social production of urban isolation. *Ethnography* **2001**, *2*, 501–531. [CrossRef]
21. Mehaffy, M.; Salingaros, N.A. *Design for a Living Planet: Settlement, Science, & the Human Future*; Sustasis Press: Portland, OR, USA, 2017.
22. Nussbaum, M.; Sen, A. (Eds.) *The Quality of Life*; Clarendon Press: Wotton-Under-Edge, UK, 1993.
23. Cold, B. *Aesthetics, Well-Being and Health: Abstracts on Theoretical and Empirical Research within Environmental Aesthetics*; Norsk Form: Oslo, Norway, 1998.
24. Zeki, S. Beauty in Architecture: Not a Luxury—Only a Necessity. *Archit. Des.* **2019**, *89*, 14–19. [CrossRef]
25. Ulrich, R. View through a window may influence recovery from surgery. *Science* **1984**, *224*, 420–421. [CrossRef] [PubMed]
26. Taylor, N. Aesthetic judgement and environmental design: Is it entirely subjective? *Town Plan. Rev.* **1994**, *65*, 21–40. [CrossRef]
27. Kahneman, D.; Krueger, A.B.; Schkade, D.; Schwarz, N.; Stone, A. Toward national well-being accounts. *Am. Econ. Rev.* **2004**, *94*, 429–434. [CrossRef]
28. Zeki, S.; Chén, O.Y.; Romaya, J.P. The biological basis of mathematical beauty. *Front. Hum. Neurosci.* **2018**, *12*, 467. [CrossRef] [PubMed]
29. Zeki, S.; Romaya, J.P.; Benincasa, D.M.; Atiyah, M.F. The experience of mathematical beauty and its neural correlates. *Front. Hum. Neurosci.* **2014**, *8*, 68. [CrossRef] [PubMed]
30. Mehaffy, M. The impacts of symmetry in architecture and urbanism: Toward a new research agenda. *Buildings* **2020**, *10*, 249. [CrossRef]

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31. Mehaffy, M.; Salingaros, N. The Surprisingly Important Role of Symmetry in Healthy Places. *Planetizen*. 8 March 2021. Available online: <https://www.planetizen.com/features/112503-surprisingly-important-role-symmetry-healthy-places> (accessed on 28 February 2021).
 32. Mouratidis, K.; Hassan, R. Contemporary versus traditional styles in architecture and public space: A virtual reality study with 360-degree videos. *Cities* **2020**, *97*, 102499. [[CrossRef](#)]
 33. Lewin, K. Psychology and the process of group living. *J. Soc. Psychol.* **1943**, *17*, 113–131. [[CrossRef](#)]