

# Architecture, urbanism and health in a post-pandemic virtual world

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world

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## Abstract

**Purpose** – The highly contagious coronavirus and the rapid spread of COVID-19 disease have generated a global public health crisis. Crises are being addressed at various local and global scales through social distancing measures and guidelines, emerging working and living patterns and the utilisation of technology to partially replace physical learning environments. The purpose of this article is to capture the key messages of the contributions published in this special edition of Archnet-IJAR: International Journal of Architectural Research, Volume 15, Issue 1, March 2021. Reviewing more than 70 submissions, 15 articles have been identified that are contributed by 35 scholars, educators and practitioners from 12 countries. The article calls for the need to embed trans-disciplinarity in current and future built environment research.

**Design/methodology/approach** – Driven by the fact that architecture, urban design and planning and built environment studies interact and have direct correlation with public health and virus spread. The approach to develop and present the key messages of the contributions is premised on three areas: (a) the pandemic condition as it relates to the built environment, (b) analytical reflections on the emerging themes and (c) the diversity and complexity embedded in these themes.

**Findings** – While some contributions speak to the particularities of their contexts, others address regional or global parameters. The enquiry into architectural research, architectural education and architectural design indicates some of the important methods and tools to address the accelerated adoption, adaption and redesign needed to create a new and better normal which embeds flexibility, adaptability and continuous learning. The papers represent brilliant investiture to address the momentous insinuations the COVID-19 condition has on the built environment.

**Research limitations/implications** – The diversity of implications reveals potential alternative futures for urbanity and society and the associated education and practice of future built environment professions. While the contributions invite us to critically envisage possibilities for future research and collective action, critical fast-track empirical research is needed to address how health is an integral component in the production of architecture and urban environments.

**Originality/value** – The diversity, complexity, depth and breadth of the contribution convey important insights on people, health and the spatial environments that accommodate both. Trans-disciplinarity, as it relates to research and action and to the production of urban environments, is viewed as a form of learning involving co-operation among different parts of society, professionals and academia in order to meet complex challenges of society such this pandemic condition. This approach has enabled the identification of three future research areas in architecture urbanism that include implications of virus spread on urban environments, how spatial and social distancing measures and protocols are altering our understanding of spatial design.

**Keywords** Architecture, Health, Urbanism, COVID-19, Pandemic

**Paper type** Viewpoint



## Introduction

A world which is less and less governed by boundaries and more and more by connections requires the reconstruction of our understanding and knowledge of our environment and our cities. It calls for a reconsideration of the ethical foundations of architecture, urbanism and allied disciplines in this emerging world order. This special edition of Archnet-IJAR attracted an overwhelming and profound response from colleagues across the world with more than 70

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papers submitted in response to our June 2020 call for contributions. The perspective from around the world on the global pandemic, as it relates to the built environment, has been a privilege to review and reflect upon.

Following our rigorous double blind review process, 15 papers have been identified as the most suited to the focus and scope we have identified in the initial call, in addition to their qualities in terms of standard academic research and publishing. These selected papers are developed by more than 35 scholars, educators and practitioners from 12 countries including Australia, Canada, Egypt, India, Indonesia, Portugal, Qatar, Saudi Arabia, Sweden, Turkey and United Kingdom. While some contributions speak to the particularities of their contexts, others address regional or global parameters. Despite this, two dominant themes have surfaced.

The first theme is the accelerated adoption of digital, online and distance technologies in architectural pedagogy, education in general, employment, business, commerce, services and leisure. This is touched upon in each paper by stealth of COVID.

The second theme is adaptive architectural and urbanism design needed to address and contribute to a new normal. “*Stay at home’ for addressing COVID-19 protocol: learning from the traditional Balinese house*” (Putra, 2020) summarises the social distance message and looks to traditional housing for a design approach that unconsciously pre-empts the control of infectious diseases through health and well-being and culture.

At the intersection of the two themes is the University campus. “*Speculations on the post-pandemic university campus – a global enquiry*” (Deshmukh, 2021) sets the global context for the engine of the global knowledge economy. “*An evaluation of online architectural design studios during COVID-19 outbreak*” (Ceylan et al., 2020) addresses the unique social-spatial aspects of architectural pedagogy. “*COVID-19 responsive teaching of undergraduate architecture programs in India: learnings for post-pandemic education*” (Varma and Jafri, 2020) provides a teacher’s insight in addressing the vexed acceleration of digital-online education particular to architecture.

### **The pandemic condition as it relates to the built environment**

The role of architectural practice and pedagogy to respond, shape and rebuild a new normal consolidates the issues for living in a post COVID-19 urban century. They were pre-empted. In 2014, former US President Barak Obama issued an unheeded warning to address the threat of wild animal and food handling to urban environments. In 2018, the global climate crisis of drought, manifest in the capital of South Africa of Johannesburg, created the first capital city without water. In 2019, forest fires raged and social crises were signalled in the capital cities of three economic success stories of their region: Paris in Europe, Hong Kong in Asia and Santiago in America.

COVID 19 restrictions transformed the places of work, study, commerce and leisure. For the multi-use of work/education, commerce/leisure and private/public space, architecture was forced to adapt, be adapted by the user and designer alike. The public-private response to the pandemic rapidly consolidated contemporary issues of health, urbanism and architecture.

On 19 December 2019, the global health crisis spread to every capital city, intermediate city and small-town. It forced governments, businesses, academics, professional and workers to invent new ways for all of society to function while controlling the spread of the disease and finding a vaccine. The ongoing task was, and is, to establish what has been called the *new normal*.

The professions, pedagogies and practices of architecture have identified the design problem and created new uses and designs of the spaces between buildings and the buildings themselves. While acknowledging the seriousness and magnitude of the problem the world

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faces, the papers in this special edition of the journal have generated an overwhelmingly constructive perspective on a new normal.

The accelerated adoption of online, digital and distance technologies has forced the disciplines of the built environment to tackle the technology/design/spatial experience triadic of architecture and urbanism in an immediate way, through pedagogy, practice, and research. The interrelated impact and instant feedback of this adaptation in work/study, leisure and private life has created ways to embrace an uncertain future. The greatest lessons for business, government and citizens from a-normality have been demonstrated in new forms of co-operation between science, technology and society that has glimpsed a possible third way to a new and better normal.

### **Analytical reflections on the emerging themes**

The contributors to this edition of Archnet-IJAR have analysed, hypothesised and tested methods, structures and content of effective and enhanced online and distance education. This approach capitalises on the virtual collapsing of distance, the saved energy and time in travel, the curious advantages and disadvantages of personalised teaching of students in their homes/local educational facilities and the flip sides to these questions – private life and living conditions entering the online university campus and collective daily life.

Design Studio Teaching remains at the centre of architectural pedagogy and at the centre of the question of the accelerated adoption of digital, online and distance technologies. The “inevitable” move to the virtual world is most clearly illustrated by Design Studio Teaching. *“Architecture students’ satisfaction with and perceptions of online design studios during COVID-19 lockdown: the case of Jordan universities”* (Alnusairat et al., 2020) looks at the value which first year students give to hand drawing, model making and presential studio teaching compared to fourth year students.

The adaptative and redesign of architectural and urban projects covers a range of social-spatial question of equity, access and social justice in the design of cities, public spaces, homes and institutional buildings. Some contributors have taken their quarantined urban-daily reality and routine as live case studies. *“Questioning the use of the balcony in apartments during the COVID-19 pandemic process”* (Aydin and Sayar, 2020) examines this in-between architectural space for its public-private, domestic-work socialising-health potentials and pitfalls. Other contributors examine the housing crisis through the fastest growing form of housing. *“How our homes impact our health: using a COVID-19 informed approach to examine urban apartment housing”* (Peters and Halleran, 2020) looks at the quality of life in mid to high rise apartments and the rights to light (and air) as a pre- and post-COVID health concern. The adaptation or rebuild of facilities becomes a question for post-COVID architectural practice. On the rebuilt and new design side *“Healthy BIM: the feasibility of integrating architecture health indicators using a building information model (BIM) computer system”* (Rice, 2020) assesses the contribution of building project management to this challenge.

The interrelated questions of the space between buildings, the interior of buildings themselves and the threshold between hold further questions of sustainable environment, a just society and a sustainable economy. The accelerated adoption of working from home, as a viable long-term approach to employment, presents each of these design questions to housing, infrastructure, public space and institutional, office and commercial buildings. *Beyond the pandemic: the role of the built environment in supporting people with disabilities work life* (Martel et al., 2021) looks to the successes and failures of universal access in city design. The contemporary approaches that address work, home, leisure and mobility as a relationship augmented by digital, online and virtual spatial relationship holds a critical pre-COVID 19 lesson in citizenship. The sustenance of family life under a new a better normal and housing design/adaptation/redesign is raised by a number of contributors. *“Social integration*

through social connection in everyday life. Residents' experiences during the COVID-19 pandemic in SällBo collaborative housing, Sweden" (Arroyo et al., 2021) provides a unique case study of a young refugee/third aged housing development and the impact of social distancing imposed by the pandemic.

The quality of life in our homes and our cities – light, open space, privacy and air circulation – becomes complicated by COVID 19 but not unachievable and we need to know how we live, how we can adapt and of which habits, routines and customs will make our new normal better and which we cannot live without. "Emerging living styles post-COVID-19: housing flexibility as a fundamental requirement for apartments in Jeddah" (Bettaieb and Alsabban, 2020) examines the changing psychological, social and cultural conditions enforced by COVID protocols and how they impact on existing and traditional spatial practices. In a similar vein, "The fifth-place metamorphosis: the impact of the outbreak of COVID-19 on typologies of places in post-pandemic Cairo" (Abd Elrahman, 2020) studies new living models of adaptive, spontaneous urban and architecture design tactics. "The new normal or the forgotten normal: contesting COVID-19 impact on contemporary architecture and urbanism" (Alraouf, 2021) interrogates the practice of architecture, urbanism and city planning before the COVID-19 and contests its responsibility towards the city and the community. This leaves us with the challenge of creating a new and better normal in the post-COVID era.

The imposed need for the adaptation, redesign and the new design of educational facilities questions many pedagogical assumptions and presents new challenges and new solutions. The audit and evaluation of existing building infrastructure for education must be the starting point. "Design tactics for enhancing the adaptability of primary and middle schools to the new needs of postpandemic reuse" (Güzelci et al., 2020) develops an assessment matrix for existing education facilities and building adaptation rather than rebuilt. As such it also addresses questions of social and environmental sustainability. For the forms and structures of administration for University Education and the design of the curriculum, "Well-coordinated: learner-focused coordination tactics beyond the pandemergency" (Soccio et al., 2020) provides a model for the pre- and post-COVID university through, and in, a student-centred teaching and learning approach.

University education, and architectural education in particular, the university campus, the public space and building design for presential teaching present a huge challenge. The tools and knowledge to assess what should be online become essential thinking tools for a new and better educational model. Teaching experience as well as student experience of the online campus must be kept in constant evaluation, modification and betterment. These will be enhanced by the very tools that are the teaching medium and method. "An evaluation of online architectural design studios during COVID-19 outbreak" (Ceylan et al., 2020) uses a qualitative approach to evaluate first-, second-, third- and fourth-year students of architectural design studios during the COVID-19 learning environment.

### **Diversity and complexity: a trans-disciplinary built environment research in a post-pandemic world**

By and large, the breadth and depth of enquiry into architectural research, architectural education and architectural design in this edition of Archnet-IJAR indicate some of the methods and tools to address the accelerated adoption, adaption and redesign needed to create a new and better normal which embeds flexibility and learning. The papers represent an excellent inauguration to address the momentous insinuations the COVID-19 condition has on the built environment. The diversity of implications tells us much about potential alternative futures for urbanity and society and the associated education and practice of future built environment professions. In essence, the contributions invite us to critically

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envisage possibilities for future research and collective action within built-environment related disciplines.

The public health upheaval caused by coronavirus has generated significant impacts on societies, cities and settlements around the world. The complexity of the implications requires active engagement from various disciplines from an integrated transdisciplinary perspective where architects and urbanists play a major role. Operationalising ideas generated in design and planning discourse, trans-disciplinarity can be elucidated as a form of learning through action involving co-operation among different parts of society, professionals and academia in order to meet complex challenges of society. Trans-disciplinary research starts from tangible problems. Solutions are devised in collaboration with multiple stakeholders, including academics and professionals from different disciplinary backgrounds (Doucet and Janssens, 2011). Transcending the boundaries of the various disciplines, as a mode of knowledge production, it can simultaneously confront complexity while challenging fragmentation of knowledge. Its hybrid nature and enables it to incorporate any academic disciplinary structure (Dunin-Woyseth and Nielsen, 2004; Lawrence and Depres, 2004). In essence, the implications of COVID-19 on architecture and urbanism represent a hybrid condition that requires hybrid modes of thinking and approaches to investigation.

Health and well-being, adaptation and appropriation in crisis situations such as this pandemic appear to be at the forefront of concerns at various scales and project types including buildings, public spaces, the public realm, university campuses and residential environments. The development of healthy environments must be central to architecture and urbanism in the future; despite the absence of health as an important parameter within the education and practice of architecture and urban design and planning professions. Forsyth (2020) asserts this view and argues: *“For the past decades, those looking at the intersections of planning, design, and public health have focused less on infectious diseases and more on chronic disease, hazards and disasters, and the vulnerable.”* Rice (2019) maintains that the design of the built environment is a determinant of health, and thus, there is an increasing need for greater synergy between architectural and urban education, research, and practice and public health.

The following is an ephemeral outline of three potential research areas that engage with various types of disciplinary knowledge which require a transdisciplinary thinking and, concomitantly, collective action. The topics are only examples inspired by various aspects addressed in this edition of Archnet-IJAR. Topics and areas are inclusive, and they can be elaborated upon and expanded, adopted and adapted to speak to specific contextual challenges.

The first area is urban dynamics which deals with the implications of virus spread at the city scale as well as the wider global dimension. Key disciplines that would work together in this area include urban design, urban planning, human geography, transportation engineering and public health. Vital topics under urban dynamics as they relate to virus spread and environmental health include:

- (1) Emerging perceptions of urban density and designing for effective density management at a time of virus spread;
- (2) Urban peripheries and sprawl versus healthy urban centres;
- (3) Connectivity and enhanced policies for alternative forms of transit;
- (4) Urban mobility in relation to air pollution, carbon emissions and mortality rates;
- (5) Access, space standards and emerging protocols for design and use of public facilities;

- (6) Impacts on, and potential intervention strategies in, slums, informal settlements and urban poverty in the global south;
- (7) Impacts of paused/reduced global infrastructure and global interworks on cities;
- (8) Impacts on airport hubs and industrial place typologies as potential areas for virus spread.

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The second area deals with distancing measures which addresses how spatial and social distancing measures and protocols are altering our understanding of spatial design, especially at the urban spaces level. Key disciplines that would collaborate in this area to address relevant implications and generate new knowledge include architecture and urban design, environmental psychology, disaster psychology and public health. Principal topics under the implications of distancing procedures resulting from various tiers and levels of intensity of measures include:

- (1) Emerging standards for integrating health in public spaces and as a key constituent in understanding place;
- (2) The nature of future use of public spaces including spontaneous interactions, social control, passive/active engagement as they relate to personal and public health and safety;
- (3) Mitigation through Biophilic design standards, restorative environments and engagement with nature;
- (4) Emerging design standards addressing new measures of personal space, proximity relationships, healthy urban settings;
- (5) Potential seasonal migration patterns (the urban, the peripheral and the rural);
- (6) Emerging perceptions of geographical locations and place attachment within the city (home zone/range, workplaces, recreational environments and city centres).

The third area concerns itself with emerging patterns of living and working where the COVID condition has altered the nature of living and work from a state of isolation to one of integration of two types of use. This has substantial repercussions on current and future home environments and workplaces. Key disciplines that would work collaboratively in this area to address relevant implications and generate new knowledge include architecture, interior and urban design, architectural engineering, environmental psychology and various disciplines within social sciences (anthropology and ethnography); major topics include:

- (1) Emerging standards of spatial environments that accommodate new living/working patterns;
- (2) Appropriation and adaptation (retrofitting) of the existing housing stock (and that which is under development) to meet emerging needs;
- (3) Standards and specifications for new residential environments;
- (4) Work-based life modes (wager-earner, career-oriented and self-employed) as determinants of designing future home environments;
- (5) Attitude based sub-cultures (within the larger society) competition and individualism, isolation and avoidance of social controls, equity and negotiation, as determinant of future housing choices.



The trans-disciplinary understanding of the implications, as they relate to knowledge production and future built environment research, would reveal important insights into the factors that will impact future education, research and practice of architecture and urban design, with health and interconnectivity as key research drivers. As the spread of COVID-19 has influenced individuals, communities, organisations and governments, its impacts will be on every level and scale from global networks and infrastructure to global cities and urban regions and from residential neighbourhoods and public spaces to home and work environments and will continue for many years to come.

The spread of the disease generated a condition, which is characterised by human detachment, isolation and engagement in a virtual world, coupled with an emphasis on working from home through the utilisation of information and telecommunication technologies. The necessity and acceptability of these new norms as a result of attempting to limit the disease spread appears to be a catalyst for future research. While addressing health in a post pandemic virtual world, negative consequences emerge where many people around the world will be living and working in confined spaces, surrounded by high-rise agglomerations, others will have the privilege of engaging with nature.

This condition we are now encountering was predicted, more than 15 years ago, as evident in the writings of theorists in architecture and urbanism. Manuel Castells in his book: *The Rise of the Network Society: Economy, Society, and Culture* (2002) developed a methodical theory of the information society, which is based on the overpowering impacts of information technology in a contemporary global world. His assumption that the global city is not necessarily a place, but a process seems to manifest in where we are the moment. The visionary trilogy of the late William Mitchell is clear evidence that where we are represents the prospects of our future built environment (Mitchell, 1995, 1999, 2003).

In an electronically connected world, our cities, buildings and social practices are being reshaped and thus, we must extend the definitions of built environment related disciplines to integrate virtual places as well as physical ones and interconnection by means of telecommunication links as well as by pedestrian circulation and mechanized transportation systems. Strategies for the creation of cities that not only will be sustainable but also will make economic, social and cultural sense in an electronically interconnected and global world will be important to interrogate and further develop, going forward.

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