



OPEN ACCESS

EDITED BY

Pier Luigi Sacco,
University of Studies G. d'Annunzio Chieti and
Pescara, Italy

REVIEWED BY

Hourakhsh Ahmadnia,
Alanya University, Türkiye

*CORRESPONDENCE

Mizan Rambhoros,
✉ mizan.rambhoros@univie.ac.at

RECEIVED 30 September 2024

ACCEPTED 31 December 2024

PUBLISHED 31 January 2025

CITATION

Rambhoros M, Neutra RR, Cerarols R and
Pelowski M (2025) Operationalising
"loveability": an interdisciplinary approach to
enriching quality of life experiences in cities
through creative cultural spaces.
Front. Built Environ. 10:1504553.
doi: 10.3389/fbuil.2024.1504553

COPYRIGHT

© 2025 Rambhoros, Neutra, Cerarols and
Pelowski. This is an open-access article
distributed under the terms of the [Creative
Commons Attribution License \(CC BY\)](#). The
use, distribution or reproduction in other
forums is permitted, provided the original
author(s) and the copyright owner(s) are
credited and that the original publication in
this journal is cited, in accordance with
accepted academic practice. No use,
distribution or reproduction is permitted
which does not comply with these terms.

Operationalising "loveability": an interdisciplinary approach to enriching quality of life experiences in cities through creative cultural spaces

Mizan Rambhoros^{1*}, Raymond Richard Neutra², Rosa Cerarols³
and Matthew Pelowski¹

¹Department of Cognition, Emotions, and Methods in Psychology, Faculty of Psychology, University of Vienna, Vienna, Austria, ²Neutra Institute for Survival Through Design, Pacific Grove, CA, United States, ³Geohumanities Research Group, Department of Humanities, Universitat Pompeu Fabra, Barcelona, Spain

Loveability represents an emerging answer for enriching urban quality of life. The idea prioritises city dwellers' emotional connections with psycho-spatial aspects of cities, beyond mere infrastructure, functionality, or services ("liveability"), which may not fully support positive wellbeing, especially in European cities. However, due to shifting, largely theoretical definitions and arguments for an unquantifiable nature, questions remain as to how people themselves think and feel about loveability within actual urban spaces. Here, for the first time we assessed how people quantify loveability, within two creative cultural or "third places:" MuseumsQuartier Haupthof in Vienna, Austria and Plaça de Joan Coromines in Barcelona, Spain. Based on a literature review, we identified potential psychological and spatial aspects associated with loveability and created a survey administered on-site to participants (N = 244) recruited from among foot traffic in our study settings. Participants rated spaces for liveability and loveability in their general experience of the places, and then defined how they had rated the "loveability" aspect via the importance of 55-items. Participants considered both places as loveable and contributing to positive wellbeing. Exploratory Factor Analysis and multiple regression models led to 5 factors for each population that highlighted groupings of significant psychological versus spatial dimensions. The distribution pattern showed commonalities of mostly psychological (e.g., delight/fascination, community, restorative wellness) but fewer spatial (usage/functionality) aspects across both settings. Our findings demonstrate that loveability plays a role in serving individuals' delight and wellbeing, and insights of "accessibility," "inclusivity," and "order" may inform urban planning strategies and placemaking.

KEYWORDS

aesthetics, architecture, loveability, psychological, spatial, third places, urban, wellbeing

1 Introduction

“Never say that something has moved you if you are still in the same place.”

–Winterson (1995)

Cities may house 60% of the world population by 2030 (United Nations, 2019), rising to 69% by 2050 (Roe and McCay, 2021). Benefits of urban living include factors such as healthcare, education, infrastructure, and transportation. These external indicators of people’s living conditions also typically determine “liveability,” a present global measure of quality of life and basis for rankings of the world’s cities (EIU, 2023). However, a number of emerging studies also point to key detriments or disparities even when considering highly liveable environments (Eurofound, 2017; Helliwell et al., 2020; Helliwell et al., 2021), and suggesting that urbanisation may also contribute to surging mental wellbeing challenges (Ventriglio et al., 2020; Engineer et al., 2021). Burgeoning evidence suggests that prioritising material mechanisms, functionality, and services of liveability, especially in European cities, may not be enough to support positive wellbeing fully (European Commission, 2019; European Union, 2023; Khomenko et al., 2020; De Neve and Krekel, 2020; Heatherwick, 2023), and leading to questions about what other kinds of factors could be important for shaping quality of life in cities. Potential answers have focused on aspects such as links between spatial design and psychological affect (Coburn, et al., 2017; Farrow, 2024). Theorists and practitioners suggest that especially aesthetic and emotional “inner balances” (Neutra, 1954) may be key for urban thriving. In Europe particularly, urban development initiatives note inclusion, sustainability, and a need to go “beyond building and functionality” and prioritise “minds and souls” in places and experiences (European Commission, 2023).

1.1 Loveability—a potential, but undefined and unexplored, answer to wellbeing in cities?

One concept that may provide a unique answer, combining many of the above aspects, involves the idea of *loveability* (Mouzon, 2015; Kent, cited Carnegie Council, 2015; Benfield, 2016).

Loveability, as the general idea, harks back to human geographer Tuan’s (1974) seminal notion of people’s affinity with particular places. Built environment practitioners have extended this affective bond between people and place with related concepts of place identity, place quality, and people experience. Loveability is variably argued to encompass a feeling of attachment with city spaces (Kent, cited Carnegie Council, 2015), or a sentiment inspired by a place influenced by values such as behaviour and experience (GHD, 2020), and manifests in emotional connections with urban spaces, creating feelings of contentment, comfort, and cosiness (Kageyama, 2021). The unconventional idea was initially proposed as a basic aspect of living and an essential characteristic of sustainable buildings (Mouzon, 2015; Tai and Ang, 2017). Loveability has also later been promoted as part of the resurgence of placemaking (Warnick, 2016)

and fundamental to the design of not just functional, but also pleasing built urban environments (Benfield, 2016).

Loveability is, therefore, believed to constitute positive experiences—coalescing interacting positive psychological and spatial dimensions in a deeper people-place relationship, where built environments play an essential role for meaningful experiences in urban life (Kageyama, 2021). The premise of these arguments, especially, is that loveability may deviate from the conventional idea of liveability, extending beyond hard infrastructure of urban environments and paying attention to “place and community” (Kent, cited Carnegie Council, 2015). The idea of loveability may therefore be an emerging solution to create better environments for quality of life in cities (Kourtiti et al., 2022b)—argued to provide a key answer to “What makes a city great? It’s not the Liveability but the Loveability” (Carnegie Council, 2015).

But what is loveability exactly? In the urban context, loveability presents a particularly problematic set of questions. As an ineffable quality, it remains unclear as to how this enigmatic phenomenon might manifest in cities. Especially as a term that has arisen from more humanistic discourse, loveability has not precisely been investigated. As put by Mouzon (2015) the topic entered into the general lexicon of the built environment two decades ago “unfettered by an association with any one book, site, or person.” Albeit helpful in offering an overview of what loveability could be, these are theoretical claims, derived from literature comprising anecdotal evidence (Warnick, 2016; Tai and Ang, 2017; Kageyama, 2021) and reviews relying on urban and social planning theories as well as policy documents and frameworks on *liveability* (GHD, 2020).

Still, the question remains as to what the building blocks of a truly loveable city are (Fisher, 2018). Especially across built environment sectors, industry-driven demand for solid information on loveability has intensified over the last decade, particularly regarding global city rankings (Brúlé and Tuck, 2019), real estate and market research analyses (Tacadena, 2019; Kulasooriya and Wee, 2021), and architecture and urban design frameworks (Moore, 2019; Lander and Glasby, 2020). This demand is linked to a twofold problem. First, there is dearth of coherent, clear, and concrete quantification of what loveability may actually be. This lack is concomitant with assumptions that loveability is so intangible, unquantifiable (Carnegie Council, 2015) or “mushy” (Benfield, 2016), or with so many nebulous and somewhat conflicting arguments, that it may be beyond definition or at least, presently difficult to use in built environment settings (Mouzon, 2015).

Second, dedicated empirical research that actually asks people about loveability as they may actually experience spaces is lacking. Especially, there is little evidence regarding if and when loveability is actually reported by people in cities; do urbanites suggest their city spaces are loveable; why or what factors may they be using in such assessments? Recent initiatives have begun such investigations, such as the Design Singapore Council (2021), which recently examined aspects of “what people find loveable and difficult to love” about that city via qualitative surveys, interviews and focus groups and suggesting some basic factors such as “people and communities.” A handful of studies have also developed the concept of “city love” to assess liveable and loveable neighbourhoods in European cities (Wahlström et al., 2020; Kourtiti et al., 2021a; Kourtiti et al., 2021b; Kourtiti et al., 2021c; Kourtiti et al., 2022a; Kourtiti et al., 2022b) and comparing ratings to other geo-social factors or displaying

responses via geo-science visualization. However, despite these emerging advances, it remains unclear what actually manifests as loveability, when people might say this, and how they come to these decisions in specific urban experience.

1.2 The present study

This project attempted to fill these gaps in knowledge by assessing data gathered from on-site surveys of city users' actual *in situ* experiences with particular public places in urban districts in two European cities (*viz.* Vienna, Austria and Barcelona, Spain). Our field study aimed to observe and assess loveability as people experience this, driven by the research question *What are individuals' perceptions of loveability in real-world experiences with urban public places?* Our goal was to define tangible, measurable, and quantifiable knowledge needed to better understand the phenomenon.

We first took an interdisciplinary approach. We positioned the idea of loveability within interacting dimensions of psychological affect and spatial design and contextualised this within the broader issue of positive experience for urban wellbeing. The essence of a built environment is argued to be ultimately experienced, and even the less tangible features can thus be empirically investigated (Kourtiti et al., 2022a) and measured through mental and qualitative dimensions (Pérez-Gómez, 1987; Pérez-Gómez, 2015; Pérez-Gómez, 2016; Pallasmaa, 2014; Pallasmaa, 2015). Empirical approaches linking neuroscience and aesthetics methods with the practice of architecture (Eberhard, 2009; Coburn et al., 2017; Chatterjee et al., 2021), or conducting studies on subjective effect of delight and wellbeing in built spaces (Neutra, 2020; Weinberger et al., 2022; Gregorians et al., 2022), and quantifying psychological wellbeing outcomes in peoples' positive experiences with built environments (Watson, 2018) evidence this. Therefore, we systematically conducted theoretical and empirical investigation with integrated qualitative and quantitative methods of analyses—converging phenomenology, place-rooted social engagement (Cerarols and Luna, 2020), and exploratory statistics—by combining complementary conceptual and methodological insights of architecture and urban design, geography and humanities (*i.e.*, geohumanities), and psychology and aesthetics.

We focused on an Ecologically-valid investigation, gathering evidence from everyday people actually using particular public community places, by conducting surveys in the field that asked individuals for their impressions of loveability and what this means to them during their *in situ* experiences with these city spaces (Coburn, et al., 2017). City spaces are immersive experiences involving multi-sensory, multidimensional, multimodal, and temporal dynamics, and prolonged encounters with natural features of urban built environments. Controlled approaches in lab studies involving 2-D images (Weinberger et al., 2021; Chatterjee et al., 2021; Weinberger et al., 2022) and virtual reality (Gregorians et al., 2022) may not serve as proxies for this real-world experience. Therefore, we designed our study to collect and assess data of people's perceptions of loveability in the actual spaces where they may have these real-world experiences.

We also specifically focused on locations that have been argued to provide loveability, by selecting two creative cultural (Kent, cited Carnegie Council, 2015; Landry, cited Kageyama, 2021) or “third places” (Kageyama, 2021). “Third places”—a notion by sociologist Ray Oldenburg (1989)—are public gathering spaces in local district settings accessibly located between home and work. They are where people can “hang out,” interact, and enjoy activities freely in an informal atmosphere. More especially, they have an outlook of conviviality, a “joy in living” dependent upon community, essential to social wellbeing and psychological health (Oldenburg, 1997; Oldenburg and Chistensen, 2023). Examples of third places are creative cultural spaces—such as MQ Haupthof at MuseumsQuartier Wien, Austria and Plaça de Joan Coromines adjacent to the (CCCB, 2023), Spain—which are free-of-charge public spaces in urban districts set amidst museum-gallery-exhibition facilities, that converge a mix of activities (*e.g.*, recreational, educational, leisure) and afford users a range of experiences (*e.g.*, aliveness/quietness, activity/rest) (Strasser, 2021; Szántó, 2022; Rambhoros, 2024).

Our project had main objectives to: (i) identify intersecting emotive and tectonic qualities that constitute positive experiences in urban built environments; (ii) evaluate individuals' perceptions of loveability in response to real-life experiences with real-world spaces; and (iii) assess what features are important to people in considering the loveability of these places via a data reduction/exploratory factor analysis approach.

2 Methods

Our study involved two parts. First, we created an assessment battery for quantifying loveability based on a literature review, which was then administered to participants spontaneously recruited on-site from foot traffic in selected spaces previously connected to loveability arguments.

2.1 Part 1

To identify intersecting emotive and tectonic qualities constituting positive experiences in urban built environments, we conducted a focused thematic review of literature. We selected recent industry-driven attempts to unpack the topic, overall dimensions, influencing factors, key aspects, and indicators associated with loveability (Kulasooriya and Wee, 2021; Design Singapore Council, 2021; GHD, 2020; Lander, 2020; Lander and Glasby, 2020; Moore, 2019; Tacadena, 2019); underpinning theory on the “founding idea” of loveability (Tuan, 1974); studies pertaining to positively valenced psychological and spatial dimensions of aesthetic experiences (Weinberger et al., 2022; Weinberger et al., 2021; Lomas, 2022; Scott, 1924); city users' perceptions on quality of life and city rankings (Oliver, 2022); and literature on our specific study settings (Boeckl, 2001; De Franz, 2005; Kochergina, 2016; Kochergina, 2017; Kochergina, 2018; Museums Quartier Wien, 2020; Museums Quartier Wien, 2023; Roodhouse and Mokre, 2004; Silva, 2012a; Silva, 2012b; Adjuntament de Barcelona, 2023, CCCB, 2023); typologically similar spaces (Szántó, 2022; Strasser, 2021), and general experiences with city spaces and measures (Roe and McCay, 2021; Datar, 2023; Perceived Residential Environment

Quality PREQ; Bonaiuto & Bonnes, 2006; The Measurement of Place Attachment, Williams & Vaske, 2003; WHO-5, World Health Organization, 1998).

We performed a qualitative content analysis to structure and synthesise theory-based data into a matrix of items, from which we then derived our assessment battery and survey. First, we conducted an initial exploration of the data, identifying relevant segments and organising them into a table (MS Excel) under broad psychological and spatial dimensions. Then, we coded the data into a simple system of analytical units and highlighted keywords in the segments. Relevant keywords consisted of qualities linking psychological affect (i.e., pleasing emotions/highly valenced states) and spatial design (i.e., pleasurable architecture and urban character). We compiled keywords across psycho-spatial dimensions and organised them, based on shared features, into a substructure of initial concept-driven and emergent categories, later refined into ten final categories: (1) Psychological Delight/Fascination, (2) Hominess, (3) Community, (4) Restorative Wellness, (5) Spatial Fascination/Delight, (6) Place-Identity, (7) Usage/Functionality, (8) Place-Quality, (9) Mental Wellbeing, and (10) Physical Wellbeing. For the keywords of each category, high-frequency features were identified, defined as variables, and ascribed values. We quantified this data by defining variables and ascribing scores 1–5 for higher frequency features. Finally, we compiled our final 55 feature-item list of potential aspects of loveability, which served as the basis for Part 2.

2.2 Part 2

2.2.1 Settings and stimuli

Our field study was carried out in two specific locations: (1) MuseumsQuartier Haupthof in the Neubau district of Vienna, Austria (hereafter “Vienna MQ”) and (2) Plaça de Joan Coromines in the El Raval district of Barcelona, Spain (“Barcelona PJC”). We selected these as both cities are comparable European urban models that offer high to very high quality of life. Vienna recently held top rank as the world’s most liveable city for three consecutive years, but slipped over 2020 and 2021 (during the pandemic) as Barcelona moved up in the global ranks (Economist Intelligence Unit, 2024; Economist Intelligence Unit, 2023; Economist Intelligence Unit, 2021). Both cities also value creative and cultural environments in the urban experience (Strasser, 2021). Yet each is unique in specific qualities or features of the urban space, such as the creative cultural spaces of Vienna MQ and Barcelona PJC.

Each provided ideal opportunities in which to empirically investigate and measure loveability, by offering a similar range of usage/functions with differences in architectural and urban design details. The positive atmosphere of Vienna MQ (MuseumsQuartier Wien, 2020) has been especially argued to represent a particularly loveable urban space for locals and tourists (Kochergina, 2017). This mixed-used place combines arts and culture institutions, restaurants, cafés, creative industries and bookstore around a courtyard integrating curated attractions into an urban lifestyle. Barcelona PJC has been argued to be the most active space in the city (Barcelona, 2023) especially linked to activities of the CCCB. This central public area offers common access to independent establishments framing it, including university, arts

and culture institutions, restaurants/cafés, and bookstores. It is a place for everyday gatherings and public events and occurrences of quotidian life, argued to facilitate community connections and identity and a sense of pride and belonging (Silva, 2012a).

Both Barcelona PJC and Vienna MQ (Figures 1A, B) comprise natural features of architecture exteriors and open/landscaped spaces. They are both open-to-sky and surrounded by historical and post-modern and/or contemporary buildings with an average height of approx. 4-5 stories. Vienna MQ is a large-sized urban courtyard (Giddings et al., 2011) configured as a linear thoroughfare with a flat ground surface. Barcelona PJC is an average-sized public square (Giddings et al., 2011) configured as a rectangular plaza with a gentle slope. Both spaces are completely pedestrianised, barrier-free, and predominantly paved with slabs. Neither has grass; Vienna MQ has a pond, which Barcelona PJC has not but a sandy area instead. Both spaces have trees, predominantly located along the edges with a few clustered and/or dispersed across the vicinity. They have bench seating, lighting, and a few cafe umbrellas on the periphery. For more detail, see [Supplementary Materials](#).

2.2.2 Participants

The study included a total of $N = 244$ voluntary adult participants: $N = 109$ in Vienna (55.96% aged 18–29 years; 60.55% females, 35.77% males, 0.92% non-binary participants, 0.92% no specification) and $N = 135$ in Barcelona (75.56% aged 18–29 years; 64.44% females, 31.85% males, 2.22% non-binary participants, 1.48% no specification). Both samples comprised age range 18 to 60+ years, assessed using standard ranges rather than raw information, with residents (63,52%), tourists (34,84%), and undefined (1.64%). See [Supplementary Materials](#) for further demographic and nationality information.

The study was originally administered to a total sample of $N = 423$ ($n = 184$ VIE, $n = 239$ BCN), with 179 participants removed based on non-completion of essential survey components, failure to correctly answer randomly-placed attention check or honesty check, obvious multiple entries, leading to the final sample. Participants received no compensation for their participation.

2.2.3 Procedure

The field study was conducted on site in the form of a survey offered in languages of English original and translated versions of German (VIE) and Spanish and Catalan (BCN). This could be filled out online via participants smartphones using a Qualtrics QR-Code (chosen by 144 people in the final sample: $n = 38$, VIE and $n = 106$, BCN) or as paper version (chosen by 100 people in the final sample: $n = 71$, VIE and $n = 29$, BCN).

Participants were recruited as a convenience sample by field researchers standing in the defined study areas, among the daily foot traffic at the sites. Field researchers only approached people engaged in perceived low-arousal activities, i.e., strolling, sitting, or lying around, so as not to disturb people engaged in more active tasks. People were asked about their interest in participating in a study about “Quality of experiences in creative cultural spaces,” with the current place (MQ or PJC) serving as an example. After giving informed consent, participants were presented with a brief explanation of the study followed by instructions to fill out the survey according to their immediate thoughts and feelings of their

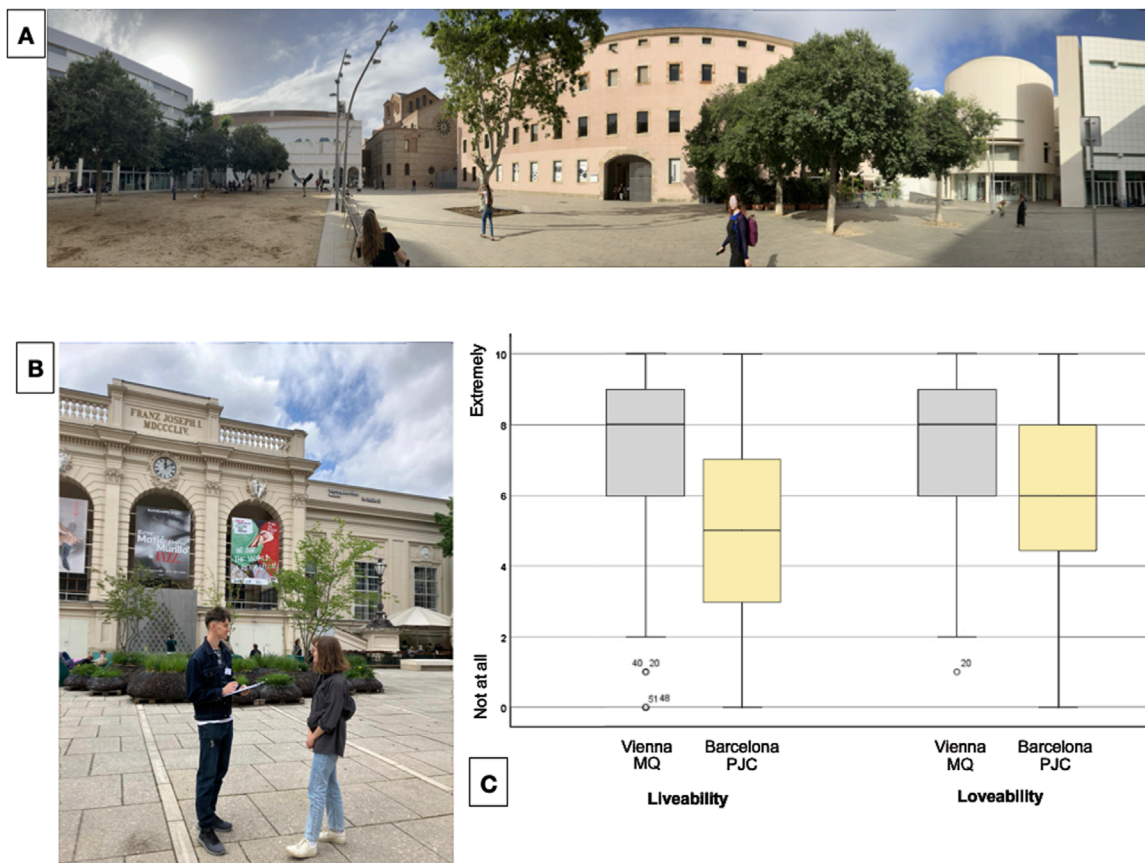


FIGURE 1

Study settings (Vienna MQ and Barcelona PJC) with ratings of liveability and loveability in each place. Note: (A) Panorama of location at Plaça de Joan Coromines, Barcelona, Spain (above), showing natural stimuli. Photograph © the study author. (B) Image of location at MQ Haupthof, Vienna, Austria (below), showing natural stimuli and field survey. Photograph © the study-affiliated field researcher. (C) Ratings of liveability and loveability in experiences with each place (MQ Haupthof, Vienna and Plaça de Joan Coromines, Barcelona). Results based on reports of in-situ experiences of participants in final sample $n = 244$ ($n = 109$ VIE and $n = 135$ BCN).

experience of the place they were in the moment. Participants (individuals and individuals in groups) were asked to fill out the survey alone whilst remaining in a fixed location (i.e., not walking about) while being exposed to the natural stimuli. Time for completion was ~15 min. Upon completion, participants were debriefed on the survey and offered a brief description of the study and specific area of investigation.

The survey consisted of three parts, in the following set order. Individual items within each survey component were randomised between participants. (1) We measured participants' subjective wellbeing using the World Health Organisation-Five Wellbeing Index (WHO-5; Topp et al., 2015) and subsequently, their current state in three selected negative emotions, namely, anxious, lonely, and stressed, on an 11-point Likert-type scale with 0 "Not at all," and 10 "Extremely". Then we asked about their current and typical visits to the place. Thereafter, participants rated their general experience of the place, which included liking, liveability, and loveability, subjective ratings of beauty, functionality, comfort, exploration, sociability, positive wellbeing. We also asked people to rate the privateness or publicness of the place. (2) To then quantify how people were defining loveability, we then asked participants to

revisit their previous rating and to answer ("How important are the following factors for your answer on loveability") by rating the importance of each item in our 55-feature list above (e.g., *The place is comfortable*; 0 = "Not at all," 10 = "Extremely") (see Leung, 2011; Preston and Coleman, 2000; Wu and Leung, 2017 for 11 point scale justification and suggestion that this approaches interval scaling). (3) Last, we asked participants if their subjective wellbeing was directly related to both liveability and loveability, "How important is the liveability and/or loveability of this place for your subjective wellbeing?" and "Ultimately, is liveability or loveability more important to your subjective wellbeing?" Finally, we asked participants to provide their demographic data and to confirm honesty in completing the survey. For a breakdown of our batteries and variables measured, see [Supplementary Materials](#).

Data was gathered by field researchers in 2 h sessions across morning to evening and over weekdays and weekends—in Vienna from September 2023 to March 2024 (which included internal piloting and early-/soft-start for fine-tuning, as well as challenges during real-life/uncontrolled study, e.g., inclement weather conditions) and in Barcelona from February to March 2024.

TABLE 1 Correlations between subjective ratings of places (Vienna MQ and Barcelona PJC) for liveability and loveability and other general ratings.

	MQ Haupthof, Vienna (Austria)		Plaça de Joan Coromines, Barcelona (Spain)	
	Liveability	Loveability	Liveability	Loveability
	r (p)	r (p)	r (p)	r (p)
Subjective ratings				
Beauty	0.537 ^a (<0.001)*	0.686 ^a (<0.001)*	0.452 ^a (<0.001)*	0.647 ^a (<0.001)*
Functionality	0.512 ^a (<0.001)*	0.473 ^a (<0.001)*	0.523 ^a (<0.001)*	0.515 ^a (<0.001)*
Comfort	0.554 ^a (<0.001)*	0.550 ^a (<0.001)*	0.596 ^a (<0.001)*	0.643 ^a (<0.001)*
Exploration	0.515 ^a (<0.001)*	0.534 ^a (<0.001)*	0.411 ^a (<0.001)*	0.585 ^a (<0.001)*
Sociability	0.496 ^a (<0.001)*	0.460 ^a (<0.001)*	0.473 ^a (<0.001)*	0.565 ^a (<0.001)*
Positive wellbeing	0.621 ^a (<0.001)*	0.619 ^a (<0.001)*	0.461 ^a (<0.001)*	0.644 ^a (<0.001)*

Note: Results based on scores of N = 244 participants (n = 109, Vienna and n = 135, Barcelona).

^aCorrelation significant at 0.01 level (2-tailed). *Correlation significant at p < 0.05. All reported p values shown uncorrected for multiple comparisons. Results that would survive family-wise Bonferroni correction shown in bold [note, none; corrected alpha = 0.0020 (0.05/24)].

3 Results

Participants' ratings of liveability and loveability in their experiences with each place are illustrated in **Figure 1C**. In Vienna MQ, we found similar, high responses to how liveable ($M = 7.1$, $Median = 8$, $SD = 2.3$, $Range = 2-10$) and how loveable the place was ($M = 7.2$, $Median = 8$, $SD = 2.1$, $Range = 2-10$). In Barcelona PJC, in addition to both ratings being slightly lower, we found slight differences between higher liveable ($M = 5.2$, $Median = 5$, $SD = 2.4$, $Range = 0-10$) and lower loveable ($M = 5.7$, $Median = 6$, $SD = 2.3$, $Range = 0-10$).

3.1 Ratings of loveability and liveability for the spaces

Correlations between ratings of liveability and loveability and other subjective ratings of beauty, functionality, comfort, exploration, sociability, and positive wellbeing were assessed in each place separately (see **Table 1**). In Vienna MQ, beauty was more strongly correlated with loveability [$r(109) = .686$, $p < .001$] than liveability [$r(109) = .537$, $p < .001$]. Similarly, in Barcelona PJC, loveability [$r(135) = .647$, $p < .001$] showed a stronger correlation than liveability [$r(135) = .452$, $p < .001$]. Functionality, comfort, exploration, and sociability all showed stronger correlations with loveability than liveability in both cities. Notably, comfort had stronger correlations with liveability [$r(135) = .596$, $p < .001$] and loveability [$r(135) = .643$, $p < .001$] in Barcelona PJC compared to Vienna MQ. Positive wellbeing also showed stronger correlations with loveability in both cities, with the effect being greater in Barcelona PJC [$r(135) = .644$, $p < .001$] than in Vienna [$r(109) = .621$, $p < .001$].

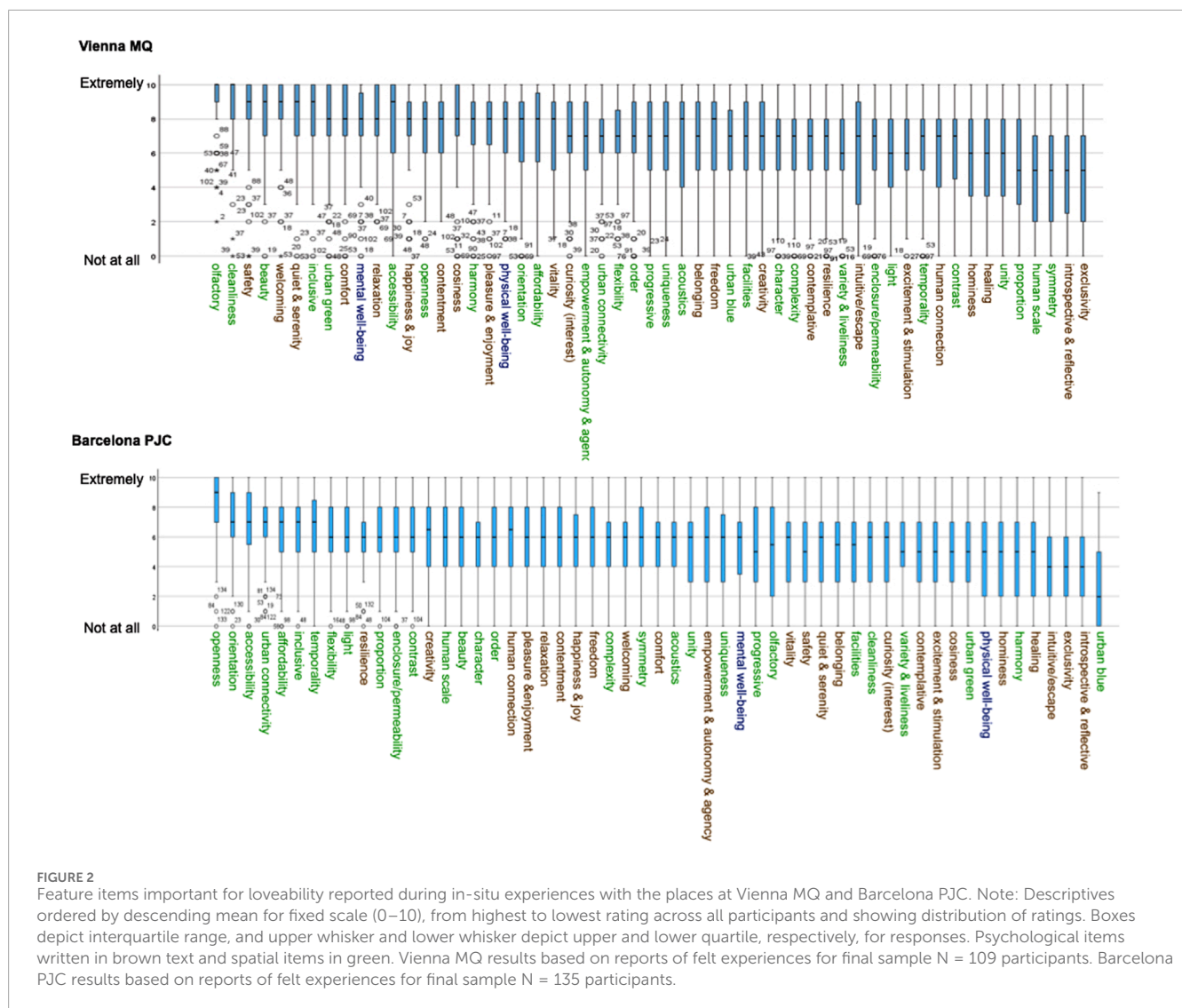
3.2 How did people explain their loveability answers?

Figure 2 shows boxplots of participants' ratings for 55 feature items for how participants answered the loveable question. We found a wide range of responses in general. For Vienna MQ, a mix of both psychological and spatial items scored both highest (olfactory, cleanliness, safety, beauty, welcoming) and lowest (exclusivity, introspective/reflective, symmetry, human-scale, proportion). For Barcelona PJC, predominantly spatial items scored highest (openness, orientation, urban connectivity, affordability, inclusive) and psychological items scored lowest (introspective/reflective, exclusivity, intuitive/escape, healing) along with "urban blue" (lowest scoring) presumably due to no water featured in the setting. Participants reported "accessible" and "inclusive" spaces among the highest scoring aspects important for loveability in both places.

3.3 Exploratory factor analysis for loveability and predictive items

Finally, to further consider the item grouping and their relation to the actual loveability assessments, we conducted an Exploratory Factor Analysis (Fabrigar et al., 1999) and multiple regression as methods of dimension reduction for Vienna MQ (**Table 2**) and Barcelona PJC (**Table 3**).

The EFA procedure was carried out in 5 steps using SPSS: (1) First look at outcomes using Kaiser's criterion—all 55 feature items included in analysis using univariate descriptives, KMO and Bartlett's test of sphericity, Principal Axis Factoring extraction based on eigenvalues (greater than 1) with direct oblimin rotation;



(2) Conducted Parallel Analysis–computed data for principal axis/common factor analysis; (3) Compared Parallel Analysis’ and Initial FA’s eigenvalues–both Vienna MQ and Barcelona PJC five factors were deemed meaningful (PA eigenvalues were smaller than EFA eigenvalues); (4) Conducted another EFA only using the 5 extracted factors–extracted fixed number of factors (five), automatically sorted by size of correlation between items and the five factors in Pattern Matrix table; (5) Organised correlation in Excel sheets–only correlations of $\geq .3$ were included, correlations $\geq .4$ depicted in bold.

In general, in Vienna MQ factors comprised items such as Factor 1 (freedom, introspection/reflection, healing); Factor 2 (human scale, proportion, enclosure/permeability); Factor 3 (relaxation, happiness/joy, contentment); Factor 4 (cosiness, contemplative, uniqueness); Factor 5 (acoustics, harmony, order). In Barcelona PJC, factors comprised items such as, Factor 1 (contentment, freedom, vitality); Factor 2 (empowerment/autonomy/agency, pleasure/enjoyment, quiet/serenity); Factor 3 (curiosity/interest, uniqueness, contrast); Factor 4 (hominess, pleasure/enjoyment, temporality); Factor 5 (welcoming, cleanliness, facilities).

A distribution pattern was revealed, showing psychological and spatial items especially spread across Factors 1 and 3 for Vienna MQ, whilst in Barcelona PJC predominant groupings of psychological items were in Factor 1 and spatial items in Factor 3. Common items across these factors in both settings were observed, also suggesting groupings as per our initial substructures of psychospacial categories. Both Vienna MQ and Barcelona PJC included common psychological aspects–*delight/fascination* (creativity, vitality, relaxation, happiness and joy, hominess, contentment), *community* (belonging, human connection, welcoming, freedom, empowerment/autonomy/agency), *restorative wellness* (healing, introspection/reflection, contemplation, intuitive/escape, pleasure and enjoyment) and spatial aspects–*usage/functionality* (order) as well as *mental wellbeing* and *physical wellbeing*. These factors also comprised items not common to both settings. For Vienna MQ, specific spatial aspects included *place-quality* (light, acoustics, olfactory, cleanliness, harmony, urban green, urban blue), *fascination/delight* (beauty), *usage/functionality* (flexibility) and psychological aspects included *delight/fascination* (safety, comfort, cosiness), *restorative wellness* (quiet and serenity, resilience).

TABLE 2 Exploratory Factor Analysis of items reported as important for determination of loveability and results of assessment of relation between factor scores and loveability ratings for Vienna MQ.

	Factor				
	1	2	3	4	5
% explained variance	14.046	8.242	8.653	5.85	9.757
Multiple regression	B = 0.511	B = -0.117	B = 0.441	B = -0.676	B = -0.095
	p = 0.028	p = 0.573	p = 0.048	p = 0.002	p = 0.683
Items					
freedom	0.739				
introspective and reflective	0.693				
healing	0.672				
intuitive/escape	0.636				
cosiness	0.608			0.372	
human connection	0.585				
physical wellbeing	0.583				
mental wellbeing	0.580				
belonging	0.566				
hominess	0.523				
acoustics	0.514				-0.307
urban green	0.503				
relaxation	0.501		0.434		
harmony	0.483				-0.327
happiness and joy	0.441		0.417		
urban blue	0.437				
contemplative	0.435			-0.428	
light	0.435				
uniqueness	0.434			-0.354	
comfort	0.433			0.415	
contentment	0.429		0.338		
empowerment and autonomy and agency	0.415				
creativity	0.395				
vitality	0.379		0.321		
human scale		0.909			
proportion		0.879			
enclosure/permeability		0.518			

(Continued on the following page)

TABLE 2 (Continued) Exploratory Factor Analysis of items reported as important for determination of loveability and results of assessment of relation between factor scores and loveability ratings for Vienna MQ.

	Factor				
	1	2	3	4	5
contrast		0.491			
exclusivity		0.429			
symmetry		0.414			
order		0.404	0.394		-0.333
orientation		0.386			-0.340
temporality		0.365			
complexity		0.347			
variety and liveliness		0.310			
openness		0.306			
cleanliness			0.757		
safety			0.713		
olfactory			0.616		
beauty			0.477		
pleasure and enjoyment	0.317		0.353		
quiet and serenity	0.305		0.344		
welcoming	0.323		0.323		
curiosity (interest)				-0.603	
excitement and stimulation				-0.552	
character				-0.503	
unity		0.405		-0.438	
facilities				-0.338	
progressive					-0.749
inclusive					-0.734
accessibility					-0.723
flexibility	0.313				-0.435
resilience	0.330				-0.404
urban connectivity					-0.358
affordability					-0.337

Note: Results of Principal Axis Factoring on all 55 items shown with Oblimin Rotation (Kaiser Normalization, missing values replaced by group mean, 19 iterations). Total number of factors (5) selected following Parallel Analysis (1,000 iterations). Total variance explained = 54.56%. Kaiser-Meyer-Olkin measure verified good sampling adequacy (KMO = 0.818). Bartlett's test of sphericity $X^2(1485) = 4358.24$, $p < 0.001$ indicated sufficient correlations between items. Results based on $N = 109$.

TABLE 3 Exploratory Factor Analysis of items reported as important for determination of loveability and results of assessment of relation between factor scores and loveability ratings for Barcelona PJC.

	Factor				
	1	2	3	4	5
% explained variance	16.349	2.739	10.959	7.621	11.428
Multiple regression	B = 1.010	B = 0.063	B = 0.426	B = -0.009	B = 0.326
	p < 0.001	p = 0.717	p = 0.037	p = 0.962	p = 0.115
Items					
contentment	0.780				
freedom	0.729				
vitality	0.721				
healing	0.716				
belonging	0.702				
mental wellbeing	0.695				
introspective and reflective	0.688				
happiness and joy	0.680				
intuitive/escape	0.644				
empowerment and autonomy and agency	0.609	-0.404			
hominess	0.599			-0.305	
excitement and stimulation	0.584				
physical wellbeing	0.518				
human connection	0.516				
contemplative	0.516				
relaxation	0.506				
pleasure and enjoyment	0.450	0.391		-0.312	
welcoming	0.408				0.404
quiet and serenity		-0.492			
creativity	0.388	0.488			
olfactory		-0.476			
cleanliness		-0.447			0.440
curiosity (interest)	0.353	0.446	0.407		
temporality		0.429		-0.368	
uniqueness		0.349	0.304		
contrast			0.737		
proportion			0.698		

(Continued on the following page)

TABLE 3 (Continued) Exploratory Factor Analysis of items reported as important for determination of loveability and results of assessment of relation between factor scores and loveability ratings for Barcelona PJC.

	Factor				
	1	2	3	4	5
symmetry			0.597		
human scale			0.556	-0.418	
exclusivity			0.548		
character			0.528		
facilities			0.473		0.378
progressive	0.402		0.469		
complexity			0.424		
order			0.395		0.321
unity			0.342		
inclusive				-0.585	
flexibility				-0.563	
affordability				-0.489	
orientation				-0.487	
enclosure/permeability				-0.472	
openness				-0.463	
resilience				-0.444	
accessibility				-0.335	
urban connectivity				-0.312	
harmony					0.759
urban green					0.757
urban blue					0.722
comfort					0.557
cosiness					0.532
beauty					0.485
safety					0.470
acoustics					0.437
variety and liveliness					0.306
light					

Note: Results of Principal Axis Factoring on all 55 items shown with Oblimin Rotation (Kaiser Normalization, missing values replaced by group mean, 48 iterations). Total number of factors (5) selected following Parallel Analysis (1,000 iterations). Total variance explained = 57.36%. Kaiser-Meyer-Olkin measure verified good sampling adequacy (KMO = 0.901). Bartlett's test of sphericity $X^2(1485) = 5267.38$, $p < 0.001$ indicated sufficient correlations between items. Results based on $N = 135$.

For Barcelona PJC, specific spatial aspects included *place-identity* (character, contrast, complexity, uniqueness, progressive), *place-quality* (unity, human scale, proportion, symmetry), *usage/functionality* (facilities) and psychological aspects included *delight/fascination* (excitement and stimulation, curiosity/interest) and *community*.

We conducted a multiple regression (Entry method) for the five factor scores as predictors of the loveability assessment. The factor scores that significantly predicted the ratings in Vienna (.23, $p < .001$ and .19, $p < .001$) and Barcelona (.43, $p < .001$ and .18, $p < .001$) indicated that loveability increases with increasing values of factors 1 and 3 in both places.

4 Discussion and conclusion

We found that the distribution of important psychological and spatial aspects of loveability included broad differences between cities. Surprisingly, psychological qualities reported in experiences were similar in response to different spatial stimuli. This finding concurs with prior studies acknowledging experience-dependent responses and stimulus-specific differences in real-world settings (Weinberger et al., 2021), whereby variability in aesthetic experiences with built environments involve shared psychological and emotional responses induced by different stimuli of specific architecture and urban design features (Weinberger et al., 2022). Relatedly, we found that loveability was related to positive mental and physical wellbeing across settings with different spatial characteristics. This finding is consistent with prior studies recognising that design elements fostering wellness are unlikely to be consistent across different settings (Chatterjee et al., 2021) and that differences in architecture and urban spaces modulate the nature of aesthetic experiences which in turn mediate effects on wellbeing (Coburn, et al., 2017). Significantly, our findings align with most recent scientific evidence that urban third places foster community wellbeing, encourage social interaction, and enrich the urban experience (Joshi and Nagarsheth, 2024). This also touches on Roman architect Vitruvius Pollio et al. (1914) notion of *venustas* (delight), which asserted that designed spaces must appeal to our aesthetic sensibilities, in that built environments must have meaningful pleasing impact on human experience.

4.1 Implications

Our paper contributes better understanding of loveability and offers insights valuable for future research and practice on enriching quality of life in cities.

In terms of future research, our field study provides a systematic way to empirically examine the phenomenon of loveability by using interdisciplinary and ecologically-valid approaches. We demonstrated this by building upon and solidifying prior theoretical assumptions of loveability with quantified descriptions of what people think and feel about loveability as they actually experience this. This methodology suggests a psycho-spatial framework that opens avenues for examining loveability in other places, serving as a reference for other comparative studies in European cities and beyond. However, we also agree with most recent studies calling for additional qualitative research in relation to statistical associations, needed to more deeply understand reasons behind psychological and emotional wellbeing for enhanced urban quality of life (Ojobo et al., 2024). Such advancements would be helpful contributions toward developing a theory, model, and

new indices of loveability, useful as a scientific guideline, built environment tool, and metric system for urban living.

In terms of practical applications in architecture and urban design, we agree with prior studies advocating against broadly generalising implementation of design elements from one setting to another (Chatterjee et al., 2021) and translating spatial details gleaned from one stimuli-specific environment to another (Weinberger et al., 2021). However, whilst setting-specific features related to loveability may not necessarily be universally shared, our findings suggest ensuring “accessibility” and “inclusivity” in urban planning strategies and policy-making to enrich urban quality of life experience. Insights also point to prioritising *usage/functionality* (order) among other unique spatial characteristics such as *place-quality* (light, acoustics, olfactory, cleanliness, harmony, urban green, urban blue, unity, human scale, proportion, symmetry), *fascination/delight* (beauty), *usage/functionality* (flexibility and facilities), *place-identity* (character, contrast, complexity, uniqueness, progressiveness) in placemaking. This also involves an awareness of *delight/fascination* (creativity, vitality, relaxation, happiness and joy, hominess, contentment), *community* (belonging, human connection, welcoming, freedom, empowerment/autonomy/agency), *restorative wellness* (healing, introspection/reflection, contemplation, intuitive/escape, pleasure and enjoyment).

Essentially, our paper demonstrates that loveability contributes to enriching experiences that serve individuals’ delight and wellbeing, in addition to outward conditions of liveability (Neutra, 1954).

Data availability statement

The original contributions presented in the study are included in the article/Supplementary Material, further inquiries can be directed to the corresponding author.

Ethics statement

The studies involving humans were approved by the Ethics Committee of the University of Vienna. The studies were conducted in accordance with the local legislation and institutional requirements. The participants provided their written informed consent to participate in this study.

Author contributions

MR: Writing—original draft. RN: Writing—review and editing. RC: Writing—review and editing. MP: Writing—review and editing.

Funding

The author(s) declare that financial support was received for the research, authorship, and/or publication of this article. This research was supported by a grant to MR and MP by

Marie Skłodowska-Curie Postdoctoral Fellowships (HORIZON-MSCA-2021-PF-01: European Fellowships, 101062942) and a grant to MP by EU Horizon 2020 Research and Innovation action: TRANSFORMATIONS-SC6-2019: Societal challenges and the arts (no. 870827).

Acknowledgments

We wish to thank the field researchers, interns, and students who were involved in gathering data for the study. MR extends special thanks to Lena Bauer-Wolf and Christina Glaser for their work on data analysis and Theresa Demmer for proof-reading. Appreciation to all the voluntary participants in Vienna and Barcelona who contributed to the study.

Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

References

- Barcelona, A. de (2023). Plaça de Joan Coromines-CCCB. Available at: <https://www.biennaldepensament.barcelona/en/venues/placa-de-joan-coromines-cccb> (Accessed October 27, 2023).
- Benfield, F. K. (2016). How to make smart growth more lovable and sustainable. *HuffPost impact*, 29 June 2016. Available at: https://www.huffpost.com/entry/how-to-make-smart-growth_b_7681286 (Accessed November 16, 2024).
- Boeckl, M. (2001). in *MuseumsQuartier wien* (Wien: Springer-Verlag).
- Bonaiuto, M., Fornara, F., and Bonnes, M. (2006). Perceived residential environment quality in middle- and low-extension Italian cities. *Eur. Rev. Appl. Psychol.* 56 (1), 23–34. doi:10.1016/j.erap.2005.02.011
- Brülé, T., and Tuck, A. (2019). Top 25 cities. The monocle quality of life survey. *MONOCLE Qual. Life Surv.* 125, 41–65.
- Carnegie Council (2015). “Innovations: what makes a city great? It’s not the liveability but the loveability,” in *Policy innovations digital magazine(2006-2016)*. Available at: <https://www.carnegiecouncil.org/media/series/policy-innovations/policy-innovations-digital-magazine-2006-2016-innovations-what-makes-a-city-great-its-not-the-liveability-but-the-loveability> (Accessed November 16, 2024).
- Centre de Cultura Contemporània de Barcelona (CCCB) (2023). *Our history*. The CCCB. Available at: <https://www.cccb.org/en/the-ccb/our-history/231681> (Accessed September 27, 2023).
- Cerarols, R., and Luna, A. (2020). “Geocreativity. Place rooted social engagement in industrial ruins – the case of Konvent, Spain,” in *Geographies of post-industrial place, memory, and heritage*. Editors M. A. Rhodes, W. R. Price, and A. Walker (London: Routledge), 103–122. Available at: <https://www.taylorfrancis.com.uaccess.univie.ac.at/chapters/edit/10.4324/9781003007494-9/geocreativity-rosa-cerarols-antonio-luna?context=ubx&refId=e24e9eb-42be-4d45-b412-d6b6b539986> (Accessed August 8, 2023).
- Chatterjee, A., Coburn, A., and Weinberger, A. B. (2021). The neuroaesthetics of architectural spaces. *Cogn. Process.* 22 (1), 115–120. doi:10.1007/s10339-021-01043-4
- Coburn, A., Vartanian, O., and Chatterjee, A. (2017). Buildings, beauty, and the brain: a neuroscience of architectural experience. *J. Cognitive Neurosci.* 29 (9), 1521–1531. doi:10.1162/jocn_a_01146
- Datar, R. (2023). *Surveillance in the sunshine*. BBC News: The Travel Show. Available at: <https://www.bbc.co.uk/programmes/m0011hyp> (Accessed May 24, 2023).
- De Franz, M. (2005). From cultural regeneration to discursive governance: constructing the flagship of the ‘museumsquartier Vienna’ as a plural symbol of change. *Int. J. Urban Regional Res.* 29, 50–66. doi:10.1111/j.1468-2427.2005.00569.x
- De Neve, J.-E., and Krelke, C. (2020). “Cities and happiness: a global ranking and analysis,” in *World happiness report 2020, sustainable development solutions network*, 47–66. Available at: <https://www.jstor.org/stable/resrep25851.6>.

Generative AI statement

The author(s) declare that no Generative AI was used in the creation of this manuscript.

Publisher’s note

All claims expressed in this article are solely those of the authors and do not necessarily represent those of their affiliated organizations, or those of the publisher, the editors and the reviewers. Any product that may be evaluated in this article, or claim that may be made by its manufacturer, is not guaranteed or endorsed by the publisher.

Supplementary material

The Supplementary Material for this article can be found online at: <https://www.frontiersin.org/articles/10.3389/fbuil.2024.1504553/full#supplementary-material>

Design Singapore Council (2021). The loveable Singapore project report. Available at: <https://www.designsingapore.org/initiatives/loveable-singapore-project.html> (Accessed September 3, 2024).

Eberhard, J. P. (2009). Applying neuroscience to architecture. *Neuron* 62, 753–756. doi:10.1016/j.neuron.2009.06.001

Economist Intelligence Unit (EIU). (2021). *How the Covid-19 pandemic affected liveability worldwide*. United Kingdom: The Global Liveability Index 2021. Available at: <https://www.eiu.com/n/campaigns/global-liveability-index-2021/>. (Accessed: March 13, 2023)

Economist Intelligence Unit (EIU) (2023). *Optimism and instability*. United Kingdom. The Global Liveability Index 2023. Available at: https://pages.eiu.com/rs/753-RIQ-438/images/Jun-Global-Liveability-Index-2023.pdf?mkt_tok=NzUzLVJUS00MzgAAAGMhmckQOsKUSmXehBwUfWY8_gMM71fpYjngK4tbcy9tEgf4ak1mjumphtr_y4pbD9VQca_Uj6rbWRB6gRW5slmKMjvUMSSOpPfoIv_Z3CzXDsg (Accessed June 26, 2023).

Economist Intelligence Unit (EIU) (2024). *The world’s most liveable cities*. United Kingdom. The Global Liveability Index 2024. Available at: https://mkt-ab220141.com/NzUzLVJUS00MzgAAAGVkfFteMuMGJS9jWr_DJIS5SL0W5b2YWJGcWUe0jyWYyp_PiYFYMTi70zho6GookZ43im8c= (Accessed September 20, 2024).

Engineer, A., Gualano, R. J., Crocker, R. L., Smith, J. L., Maizes, V., Weil, A., et al. (2021). An integrative health framework for wellbeing in the built environment, *Build. Environ.*, 205, 108253. doi:10.1016/j.buildenv.2021.108253

Eurofound (2017). European quality of life survey 2016. Available at: https://www.eurofound.europa.eu/sites/default/files/ef_publication/field_ef_document/ef1733en.pdf (Accessed April 19, 2023).

European Commission (EC). (2019). *Reflection paper: towards a sustainable europe by 2030*. doi:10.2775/676251

European Commission (EC). (2023). *The societal value of the arts and culture—Its role in people’s well-being, mental health and inclusion, Directorate-General for Research and Innovation, Policy brief, November 2023*. doi:10.2777/23132

European Union (EU) (2023). “beautiful | sustainable | together.” New European Bauhaus. Available at: https://new-european-bauhaus.europa.eu/index_en (Accessed September 9, 2024).

Fabrigar, L. R., Wegener, D. T., MacCallum, R. C., and Strahan, E. J. (1999). Evaluating the use of exploratory factor analysis in psychological research. *Psychol. Methods* 4 (3), 272–299. doi:10.1037/1082-989X.4.3.272

Farrow, T. (2024). *Constructing health: how the built environment enhances your mind’s health*. Toronto: University of Toronto Press.

- Fisher, R. (2018). What are the building blocks of a liveable (and loveable) city? Royal Academy of Arts. Available at: <https://www.royalacademy.org.uk/article/magazine-architecture-what-makes-good-cities> (Accessed September 9, 2024).
- GHD. (2020). Draft western sydney aerotropolis social infrastructure strategy. *Rep. 3 Soc. Return Invest. Framew. West. Syd. Plan. Partnersh. November 2020*. Available at: <https://communications.ghd.com/pdf/aerotropolis-report-3.pdf> (Accessed May 15, 2023).
- Giddings, B., Charlton, J., and Horne, M. (2011). Public squares in European city centres. *Urban Des. Int.* 16 (3), 202–212. doi:10.1057/udi.2011.6
- Gregorians, L., Fernández Velasco, P., Zisch, F., and Spiers, H. J. (2022). Architectural experience: clarifying its central components and their relation to core affect with a set of first-person-view videos. *J. Environ. Psychol.* 82, 101841. doi:10.1016/j.jenvp.2022.101841
- Heatherwick, T. (2023). *Humanise: a maker's guide to building our world*. UK: Penguin Books.
- Helliwell, J. F., Huang, H., Wang, S., and Norton, M. (2021). Happiness, trust and deaths under COVID-19. in *World happiness report 2021* (New York: Sustainable Development Solutions Network), 13–56. Available at: <https://worldhappiness.report/ed/2021/>.
- Helliwell, J. F., Layard, R., Sachs, J., and De Neve, J.-E. (2020). *World happiness report 2020*. New York: Sustainable Development Solutions Network. Gallup World Poll. Available at: <https://happiness-report.s3.amazonaws.com/2020/WHR20.pdf>.
- Joshi, U. V., and Nagarsheth, S. (2024). People, places, and perceptions: assessing spatial quality attributes of urban third-place with projective survey. *J. Contemp. Urban Aff.* 8 (2), 509–528. doi:10.25034/ijcu.2024.v8n2-13
- Kageyama, P. (2021). *For the love of cities REVISITED*. St. Petersburg, FL: St. Petersburg Press.
- Khomenko, S., Nieuwenhuijsen, M., Ambrós, A., Wegener, S., and Mueller, N. (2020). 'Is a liveable city a healthy city? Health impacts of urban and transport planning in Vienna, Austria'. *Environ. Res.* 183, 109238. doi:10.1016/j.envres.2020.109238
- Kochergina, E. (2016). "Museum quarter as an urban formative core," in *The urban planning aspects of its development and position in the city grid (a case study of Berlin, Vienna and Budapest spatial models)*. Architektonické listy Fakulty architektury STU (ALFA) 1/2016, 40–51. Available at: https://alfa.stuba.sk/wp-content/uploads/2020/05/01_2016_Kochergina.pdf. (Accessed March 14, 2023)
- Kochergina, E. (2017). Urban planning aspects of museum quarters as an architectural medium for creative cities. *IOP Conf. Ser. Mater. Sci. Eng.* 245 (052031), 1–12. doi:10.1088/1757-899X/245/5/052031
- Kochergina, E. (2018). "Museum quarters vs creative clusters: formation of the identity and quality of the urban environment," in *Places and technologies. 5th international academic conference*. Available at: https://www.academia.edu/37310684/MUSEUM_QUARTERS_VS_CREATIVE_CLUSTERS_docx (Accessed March 14, 2023).
- Kourtit, K., Neuts, B., Nijkamp, P., and Wahlstrom, M. H. (2021a). A structural equation model for place-based city love: an application to Swedish cities. *Int. Regional Sci. Rev.* 44 (3–4), 432–465. doi:10.1177/0160017620979638
- Kourtit, K., Nijkamp, P., and Östh, J. (2021b). My home is my castle – assessment of city love in Sweden. *Int. J. Inf. Manag.* 58, 102213. doi:10.1016/j.ijinfomgt.2020.102213
- Kourtit, K., Nijkamp, P., Türk, U., and Wahlstrom, M. H. (2022a). City love and place quality assessment of liveable and loveable neighbourhoods in Rotterdam. *Land Use Policy* 119, 106109. doi:10.1016/j.landusepol.2022.106109
- Kourtit, K., Nijkamp, P., Türk, U., and Wahlstrom, M. H. (2022b). City love and neighbourhood resilience in the urban fabric: a microcosmic urbanometric analysis of Rotterdam. *J. Urban Manag.* 11, 226–236. doi:10.1016/j.jum.2022.04.004
- Kourtit, K., Nijkamp, P., and Wahlstrom, M. H. (2021c). How to make cities the home of people – a 'soul and body' analysis of urban attractiveness. *Land Use Policy* 111, 104734. doi:10.1016/j.landusepol.2020.104734
- Kulasooriya, D., and Wee, M. (2021). From livable to lovable: making cities more human. *Deloitte Insights Mag.* 26, 52–61. Available at: https://www2.deloitte.com/content/dam/insights/articles/us164629_dim-fall-2021/DI_DIM_Issue29.pdf?icid=learn_more_content_click.
- Lander, M. (2020). "Beyond 'liveable' – the case for creating 'loveable' places". GHD Perspectives. Available at: <https://www.ghd.com/en/perspectives/beyond-liveable-the-case-for-creating-loveable-places.aspx>.
- Lander, M., and Glasby, J. (2020). "Creating a 'loveable city' for the western sydney aerotropolis". GHD projects. Available at: <https://www.ghd.com/en/projects/social-infrastructure-strategy-creating-a-loveable-city-for-the-western-sydney-aerotropolis.aspx>.
- Leung, S.-O. (2011). A comparison of psychometric properties and normality in 4-5-6-and 11-point Likert Scales. *J. Soc. Serv. Res.* 37 (4), 412–421. doi:10.1080/01488376.2011.580697
- Lomas, T. (2022). *Happiness*. Cambridge, MA: The MIT Press.
- Moore, S. D. (2019). *Triumph of the loveable city*. Hatch | RobertsDay. Available at: https://issuu.com/roberts-day-global/docs/rd-stephen_moore-loveable-city (Accessed April 14, 2023).
- Mouzon, S. (2015). Lovability gains momentum. *Orig. Green*. Available at: <https://originalgreen.org/blog/lovability-gains-momentum.html> (Accessed November 16, 2024).
- MuseumsQuartier Wien (MQ) (2020). *Press information*. Available at: <https://www.mqw.at/en/file/1bb82aef68b62a21e687416dd6bd4a30233d3ced/download> (Accessed April 25, 2023).
- Museums Quartier Wien (MQ) (2023). *Press information*. Available at: <https://www.mqw.at/en/press> (Accessed June 15, 2023).
- Neutra, R. J. (1954). *Survival through design*. New York, NY: Oxford University Press.
- Neutra, R. R. (2020). Public health themes in survival through design: a son's appreciation. *Plan J.* 5 (2), 289–295. doi:10.15274/tjp.2020.05.02.1
- Ojobo, H., Agboola, O. P., and Shamang, K. J. (2024). Unveiling the impact of urban green landscape on quality of life in kaduna, Nigeria: residents' perceptions and sustainable strategies. *J. Contemp. Urban Aff.* 8 (1), 16–36. doi:10.25034/ijcu.2024.v8n1-2
- Oldenburg, R. (1989). *The great good place: cafés, coffee shops, bookstores, bars, hair salons, and other hangouts at the heart of a community*. Cambridge, MA: Da Capo Press.
- Oldenburg, R. (1997). Our vanishing "third places". *Plan. Comm. J.* 25, 6–10. Available at: <https://plannersweb.com/wp-content/uploads/1997/01/184.pdf>.
- Oldenburg, R., and Chistensen, K. (2023). Third places, true citizen spaces. *UNESCO Cour.* 2, 12–14. doi:10.18356/22202293-2023-2-3
- Oliver, H. (2022). *The 53 best cities in the world for 2022* (Time Out Worldwide). Available at: <https://www.timeout.com/things-to-do/best-cities-in-the-world> (Accessed August 4, 2023).
- Pallasmaa, J. (2014). 'Space, Place and Atmosphere. Emotional and peripheral perception in existential experience'. *Lebenswelt* 4.1, 230–245. doi:10.13130/2240-9599/4202
- Pallasmaa, J. (2015). "Body, mind, and imagination: the mental essence of architecture," in *Mind in architecture: neuroscience, embodiment, and the future of design*. Editors S. Robinson, and J. Pallasmaa, 51–74.
- Pérez-Gómez, A. (1987). Architecture as embodied knowledge. *J. Archit. Educ.* 40 (2), 57–58. doi:10.2307/1424941
- Pérez-Gómez, A. (2015). "Mood and meaning in architecture," in *Mind in architecture: neuroscience, embodiment, and the future of design*. Editors S. Robinson, and J. Pallasmaa, 219–235.
- Pérez-Gómez, A. (2016). *Attunement. Architectural meaning after the crisis of modern science*. Cambridge: MA: The MIT Press.
- Preston, C. C., and Colman, A. M. (2000). Optimal number of response categories in rating scales: reliability, validity, discriminating power, and respondent preferences. *Acta Psychol.* 104 (1), 1–15. doi:10.1016/s0001-6918(99)00050-5
- Rambhoros, M. (2024). "Loveability as a holistic approach to placemaking: the connection between uplifting experiences and creative cultural spaces for psycho-spatial wellbeing," in *Prague heritages past and present - built and social, architecture, media, politics, society (AMPS) proceedings series 35.1*. Editor J. Cirklová, 603–614. Available at: https://amps-research.com/wp-content/uploads/2024/04/AmpsProceedings-Series-35.1_2024.pdf (Accessed August 8, 2023).
- Roe, J., and McCay, L. (2021) "Restorative cities," in *Urban design for mental health and wellbeing*. London: Bloomsbury Visual Arts.
- Roodhouse, S., and Mokre, M. (2004). The MuseumsQuartier, Vienna: an Austrian cultural experiment. *Int. J. Herit. Stud.* 10 (2), 193–207. doi:10.1080/13527250410001692895
- Scott, G. (1924). *The architecture of humanism. A study in the history of taste*. London: Constable and Company Ltd.
- Silva, M. G. P. A. (2012a). *O Modelo Barcelona de Espaço Público e Desenho Urbano. O Espaço Público na insercao de novos Equipamentos Culturais. O caso da Praça dels Àngels e da Praça Joan Coromines*. Universitat de Barcelona. Available at: <https://diposit.ub.edu/dspace/bitstream/2445/29043/15/O%20Espaco%20Publico%20na%20insercao%20de%20novos%20Equipamentos%20Culturais%20-%20Mariana%20Silva%20pt2.pdf>. (Accessed: January 12, 2024).
- Silva, M. G. P. A. (2012b). Public space in synergy with cultural facilities. *Lisbon Barcelona as Case Stud. Instituto Super. Técnico*. Available at: <https://fenix.tecnico.ulisboa.pt/downloadFile/395144291582/Espaco%20publico%20na%20relacao%20com%20Equipamentos%20Urbanos%20-%20Extended%20Abstract%20-%20Mariana%20Silva.pdf> (Accessed December 1, 2023).
- Strasser, C. (2021). *World culture districts – spaces of the 21st century*. Vienna: Verlag für moderne Kunst.
- Szántó, A. (2022). *Imagining the future museum. 21 dialogues with architects*. Berlin: Hatje Cantz Verlag.
- Tacadena, G. (2019). Loveable city' to rise as new urban design trend. *Your Invest. Prop.* 25. Available at: <https://www.yourinvestmentpropertymag.com.au/news/loveable-city-to-rise-as-new-urban-design-trend> (Accessed April 8, 2023).
- Tai, L. S., and Ang, V. C. (2017). *Cities of love: roadmap for sustaining future cities*. London: World Scientific.

- Topp, C. W., Østergaard, S. D., Søndergaard, S., and Bech, P. (2015). The WHO-5 well-being index: a systematic review of the literature. *Psychotherapy Psychosomatics* 84 (3), 167–176. doi:10.1159/000376585
- Tuan, Y.-F. (1974). *Topophilia. A study of environmental perception, attitudes and values*. New York: Columbia University Press.
- United Nations (UN) (2019). *World urbanization prospects: the 2018 revision*. New York, NY. Department of Economic and Social Affairs, Population Division. Available at: <https://population.un.org/wup/> (Accessed August 28, 2024).
- Ventriglio, A., Torales, J., Castaldelli-Maia, J. M., De Berardis, D., and Bhugra, D. (2020). Urbanization and emerging mental health issues. *CNS Spectrums* 26 (1), 43–50. doi:10.1017/S1092852920001236
- Vitruvius Pollio, M., Morgan, M. H., and Warren, H. L. (1914). *Vitruvius: the ten books on architecture*. Cambridge, MA: Harvard University Press.
- Wahlström, M. H., Kourtit, K., and Nijkamp, P. (2020). Planning Cities4People—A body and soul analysis of urban neighbourhoods. *Public Manag. Rev.* 22 (5), 687–700. doi:10.1080/14719037.2020.1718190
- Warnick, M. (2016). *This is where you belong – the act and science of loving the place you live*. New York, NY: Penguin.
- Watson, K. J. (2018). Establishing psychological wellbeing metrics for the built environment. *Build. Serv. Eng. Res. Technol.* 39 (2), 232–243. doi:10.1177/0143624418754497
- Weinberger, A. B., Christensen, A. P., Coburn, A., and Chatterjee, A. (2021). Psychological responses to buildings and natural landscapes. *J. Environ. Psychol.* 77, 101676. doi:10.1016/j.jenvp.2021.101676
- Weinberger, A. B., Garside, E. W., Christensen, A. P., and Chatterjee, A. (2022). Effects of expertise on psychological responses to buildings and natural landscapes. *J. Environ. Psychol.* 84, 101903. doi:10.1016/j.jenvp.2022.101903
- Williams, D. R., and Vaske, J. J. (2003). The measurement of place attachment: validity and generalizability of a psychometric approach. *For. Sci.* 49, 830–840. doi:10.1093/forests/49.6.830
- Winterson, J. (1995). “Art objects: essays on ecstasy and effrontery.” London: Jonathan Cape.
- World Health Organization (WHO) (1998). “Use of well-being measures in primary health care - the DepCare project health for all,” in *Target 12. E60246. Regional office for europe* (Geneva: WHO).
- Wu, H., and Leung, S.-O. (2017). Can likert scales be treated as interval scales? A simulation study. *J. Soc. Serv. Res.* 43 (4), 527–532. doi:10.1080/01488376.2017.1329775