

Quality by Design: The Venustas of urban squares

Objectifying cause and effect in the design and success of urban squares

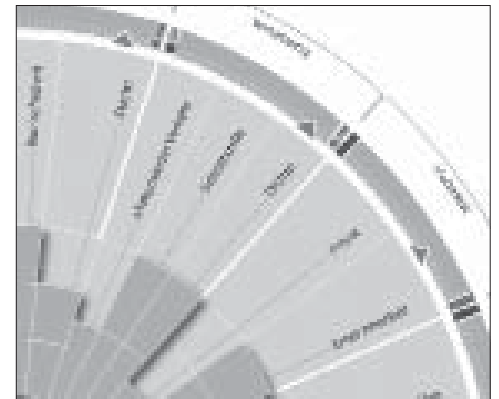
Abstract

This paper presents the results of empirical research undertaken at the Bauhaus University Weimar on the atmospheric and urban qualities of public spaces in the city. In particular it examines the question as to whether and how urban squares can be planned using objective categories and quality indicators of urban space. It seeks to contribute to this line of inquiry by assessing what influences a person's intuitive decision to remain in a specific urban space and their later decision to return to it, along with the built form of such spaces.

Valentin Hadelich
Assistant Professor
Bauhaus University Weimar
Urban Planning and Urban Design 1
valentin.hadelich@uni-weimar.de



Quality by Design: Piazzale San Francesco in Parma, Italy



Assessing Spatial Quality

Introduction

This paper focuses on two long-standing questions in the field of urban design: Does the urban form influence the quality of life of its users, and how is the beauty of a place related to its success as a public space? These questions are of particular relevance to planners in countries that have built or re-configured their towns and cities to comply with the car-oriented model of modernist town planning where amenity values, spatial qualities, beauty, and atmospheric moments were of secondary importance.

In recent years increasing competition among cities, nationally and internationally, to attract managers, well-qualified workers and 'creatives' as well as tourists and new residents shows how important the quality of public space is as a location factor.

The cultural, economic and social relevance of public space as a counterpoint to the virtual space of the Internet or globalized semi-public private spaces is becoming ever more apparent. A diverse society needs beautiful and productive spaces that engender identity and can accommodate and integrate different ways of life, social structures and religions.



Amenity values in modern times, Postcard



Amenity Values in traditional urban spaces, Piazzale della Macina, Parma, Italy

Place-making strategies that involve a vision of *venustas* help engender a sense of identity and have become the method of choice for planners and cities looking to revitalize and re-urbanize public spaces.

This study seeks to contribute to this line of inquiry by assessing what influences a person's intuitive decision to remain in a specific urban space and their later decision to return to it, along with the built form and atmospheric quality of such spaces.

The basic assumption underlying this paper is that the character, spatial quality, *venustas* and ultimately the success of a public space depend primarily on the quality of clearly definable factors. In this paper we discuss the following topics:

Is it possible to identify specific causes that contribute to the correlation between aesthetically beautiful, functionally useful, and sustainable public spaces on the one hand, and the quality of space, its usage, and quality of life on the other?

How does the desire to spend time in a public space or square correlate with the spatial and atmospheric quality of this space?

How can we accommodate subjective feelings in an objective evaluation of *venustas*?

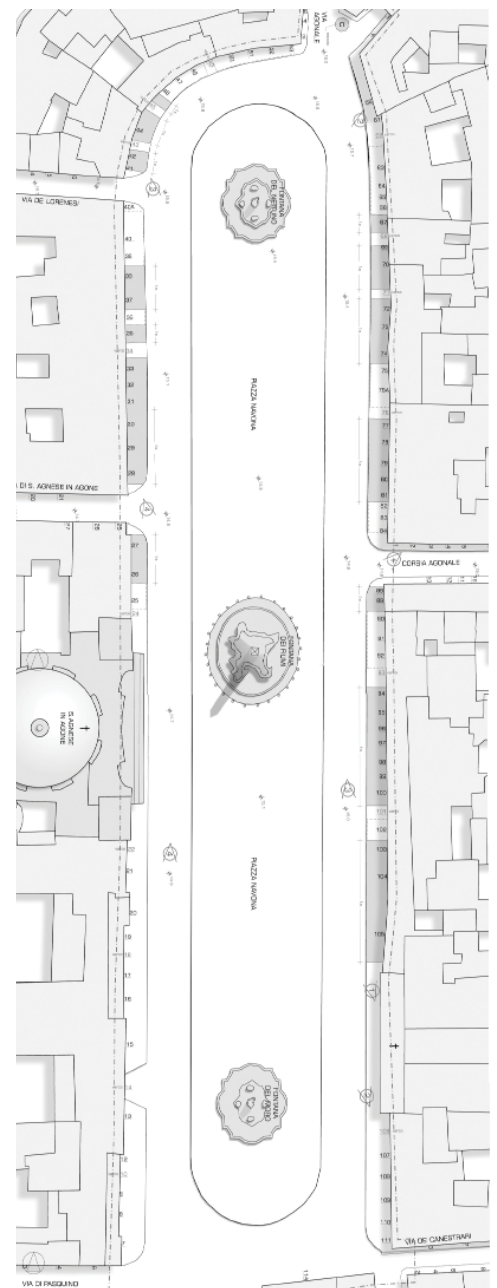
I begin by describing the impact of the modernists' attempts to invent the "square meter without properties"¹ (Sloterdijk, 2009) on the quality of life in cities, and the shift in values that is brought about by a renewed consideration of the beauty and atmosphere of urban spaces. In the central section I describe my urban research activities at the Bauhaus University Weimar and the Urban INDEX Institute and the development of a set of tools to assess the quality of urban squares. Finally, I conclude with a view of the need for such instruments.



Piazzale San Francesco, Parma



Piazza Navona, Roma



Clear definition of private usage of sidewalk space in context with the spatial configuration of the build Piazza, Piazza Navona, Roma

Venustas: atmospheric design

The Square Meter Without Properties

The Vitruvian trilogy of *firmitas* (stability), *utilitas* (utility), and *venustas* (beauty) has dominated architectural creation from the renaissance onwards right up to the success of the ideas formulated in the Charta of Athens. Since then, a single-minded concentration on *Utilitas* and *Firmitas* has dominated architectural discourse.

With the introduction of the term “a machine for living”² (Le Corbusier, 1923) by Le Corbusier, modernism finally managed to articulate what Peter Sloterdijk has described as an attempt to invent the “square meter without properties”³ (Sloterdijk 2006). Space as a machine for living is divorced from history, from nature, tradition and aesthetics. Rationalism and functionalism with their respective means and processes of production had no interest in creating atmospherically-charged public spaces.



*Traffic emergency, are our cities dying?
Cover of „der Spiegel“, 29 June 1970*



*Cars are the dominant element in the city,
1970' Napoli, Italy*



*Le Corbusiers Maison d'abitation (left), a
vertical city turns around the figure ground
principles of the traditional city (right, Piazza
degli Uffizi, Firenze, Italy)*

While the quality of the respective zones for work, living and recreation improved individually, the division of these into separate realms resulted in increasingly deserted city centers whose history and identity gave way to a diffuse sense of technical neutrality⁴ (Sennett, 1994). Atmosphere has no place in a city characterized by “urban wasteland”⁵ and “pastures of single family houses”⁶ (Mitscherlich, 1969) where public space is simply what is left over

between the urban fabric⁷ (Favole, 1995). The traditional functions of the square have today shifted from their natural location in the heart of the city to other spaces: arenas, shopping centers, large multi-functional buildings and other structures now serve as the collectors and dynamos of contemporary society⁸ (Sloterdijk, 2004).

Venustas

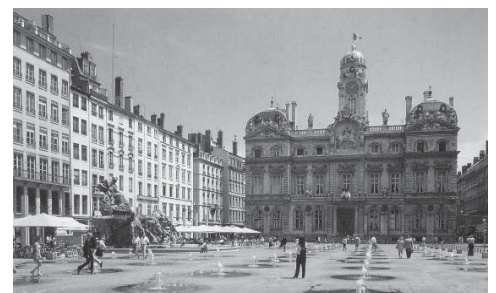
Many different meanings have been attributed to the word *venustas* over the centuries but more recently it has come to represent a somewhat simplistic idea of beauty. Architecture traditionally regards space as geometric form with people as objects that occupy a certain space within it. We need to rectify this imbalance between space and its user and to strengthen the position of the user and his or her experience of the space.

If we try to define architectural quality through something other than function and form we soon reach a point where we feel that there must be more, as Adorno put it, but are generally unable to put our finger on what that actually is. I would like to introduce a concept of *venustas* as something that everybody is aware of and is influenced by, but is rarely features in the discourse on beauty in architecture and urban design: *venustas* as atmosphere. In this context I would like to refer to the theories on atmospheres and beauty formulated by the philosopher Gernot Böhme in his writings on aesthetics and atmospheres in architecture⁹. Here *venustas* is not a predicate of a beautiful object but an atmosphere emanating from it, that attracts us and that heightens our own sense of well-being and our quality of life. To use the words of Jorge Luis Borge, “the taste of the apple lies in the contact of the fruit with the palate, not in the fruit itself”¹⁰ (Borge in Pallasmaa 1996). Applied to architecture and urban design this means that what is essential is the “almost physical emotion”¹¹ (Borge 2005) that accompanies the experience of an architectural space and not so much its materials or forms.

This conceptual understanding of atmosphere means that it cannot be studied solely from the viewpoint of how it is experienced, i.e. its subjective reception, but also from the point of view of the object responsible for creating the atmosphere¹². Consequently, not only the form of a building or the urban structure of a city is of relevance, but also the way the form influences the emotional and the mental state of its users. Each of these aspects, the form and its emotional impact on the user, should play an equal role in the concept of space in architecture. As part of my research, I propose a method of analysis that takes into consideration not only the geometrical form, as represented and specified by materials, surfaces, rhythm and so forth, or the function of the space itself, its purpose and use, but also the *venustas* of a space, that is to say its *atmospheric beauty*.



Dynamos for our society. Stadium during U2 Concert in London (Top) and the South Gate Square, South Gate Shopping Center, Bath UK



A re-urbanised square that shows great atmospheric quality through use, space and functions. The Place des Terreaux, Lyon

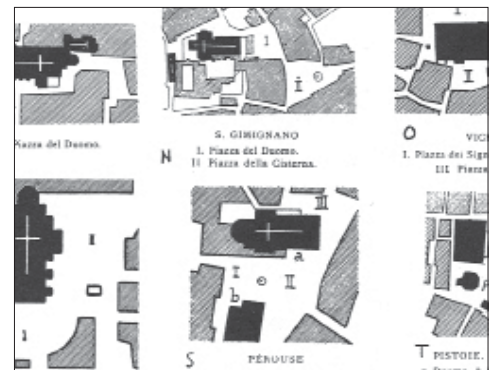
Venustas: Qualities of urban squares

In the literature, urban squares are generally classified in groups based on their shape (morphology) or ground form, specifically the ratio of width to depth and their degree of proximity. In some cases, several squares are arranged into a sequence of spaces. Many attempts to develop typologies and descriptions of squares can be found in the literature, the most influential of which were undertaken by Sitte, Stubben, Léon and Rob Krier, Zucker and Ashihara. Distinctions vary depending on the allocation of public buildings, on form and proportions.



Piazza del Duomo, Parma, Italy

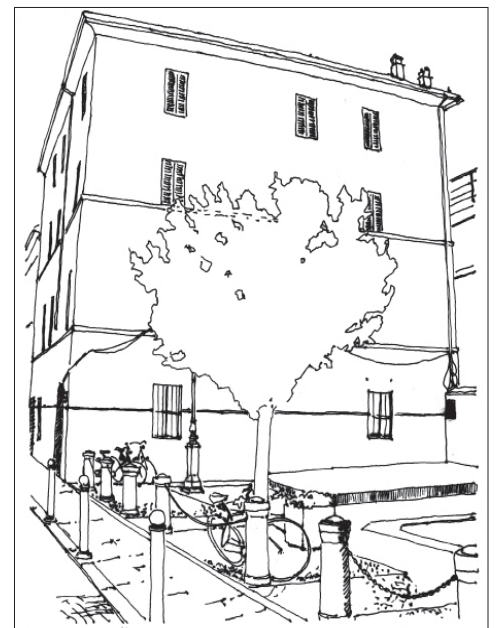
When assessing the quality of a square or urban space it is particularly interesting to note that certain spatial configurations have a similarly positive or negative effect on their users. In the fields of perception-, environmental- and aesthetic psychology in particular, much instructive research has been conducted into the effect of spaces on people¹³ (Wolter, 2008). For example, the quality of a square in terms of its spatial structure is different to the qualities resulting from adjoining uses or the functions of the square itself. Great urban squares maintain their qualities despite being subjected to different functions, uses, political systems or societal conventions over time.



Squares drawn by Camillo Sitte; in black we see important public buildings and churches



Piazzale G. Inzani, Parma, Italy



Piazzetta l'averta, Parma, Italy

Categories and Indicators

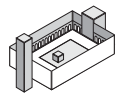
I have been able to identify *twelve indicators* for the quality of an urban square. Together they cover three different scales and all aspects of life in a square: at the macro scale, the *integration* of the square into the structure of the city and the quarter, at the meso scale, its *vitality* and communicative potential and at the micro scale, its spatial elements and their respective configuration and *emotional impact* on the user. Each of these three scales of analysis has four quality indicators.



At the macro scale the category “**integration**” describes in essence the context and the degree of connectivity a space has with its context.



At the meso scale the indicators in the category “**vitality**” shift focus from the quarter to the urban space and describe the communicative potential of a square.



At the micro scale the category “**spatial quality**” describes those properties that affect our perception of a space and how we experience its spatial qualities.

Altered images (5 versions) of three squares where shown to test persons. The original picture, the best and the worst rated alternative are shown below. In all three cases the alternative with a medium height and medium closeness where chosen as the most pleasing.



Present situation, Berlin Pariser Platz



Present situation, City Center, Vällingby



Present situation, Hauptplatz, Vienna



Worst rated alternative



Worst rated alternative



Worst rated alternative



Best rated alternative



Best rated alternative

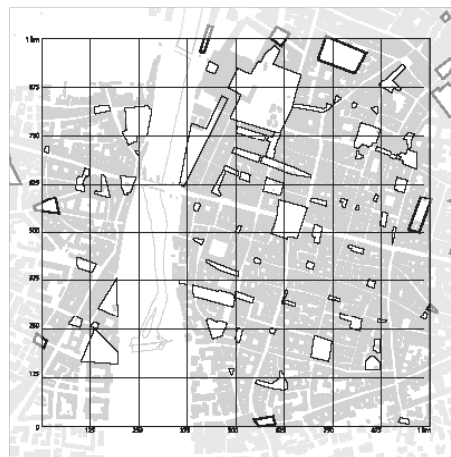
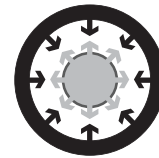


Best rated alternative

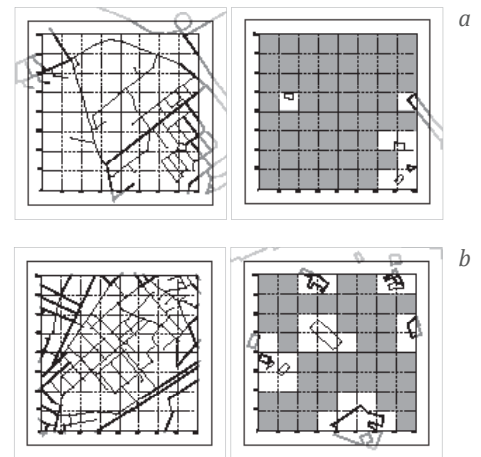
Category: Integration

The term derives from the Latin word *integratio* which means the *creation of a whole*. For an urban space to be properly part of a whole, it needs to have a high degree of integration. This means that it must be particularly tightly interwoven, on different levels, with its close context, the quarter and the district. The four indicators defining this category are *Spatial System*, *Mobility*, *Connectivity* and *Access*.

The *Spatial System* (Raumsystem) describes the relationship of an urban space to other public spaces in the city. For a quarter to offer sufficient public space for its residents, a number of other, ideally evenly distributed public spaces should be reachable within a radius of 250 m. The constellation of public spaces within an urban quarter has a significant impact on its quality.

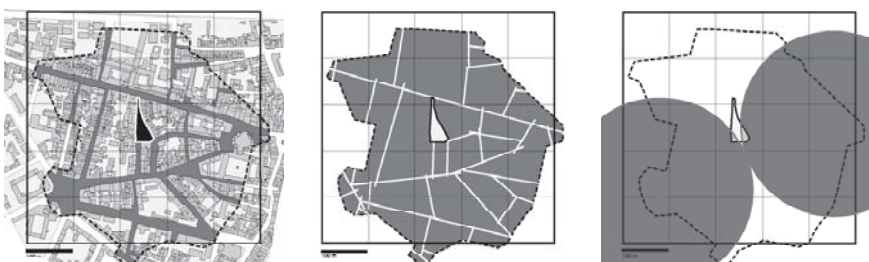


A square kilometer of Parma (IT). Left: The Path Network in Parma has a length of 27km. A square kilometer of Ludwigshafen (D) or Speyer (D) with a respective length of 8km and 17,5km shows a much lower degree of connectivity. Right: The surface of all public plazas in Parma amounts to 114.000qm, those in Ludwigshafen to 8.000qm and those in Speyer 92.000qm.



a. Ludwigshafen. Path Network & Places
b. Speyer. Path Network & Places

Mobility describes the degree in which transport infrastructure, i.e. roads, cycle paths, sidewalks and rail and bus networks connect and come together in a space. A high degree of mobility means that the urban space is easy to reach and is likely to be used on a regular basis.¹⁴⁻¹⁵



Selected drawings showing the Integration of piazzale G. Inzani square.
From left to right: public space surface in a 300m walking radius, path network and public transportation. Piazzale G. Inzani, Parma

The *visual connectivity* of a space with its surroundings through sight lines is what Cullen describes as what constitutes a sense of “here and there”¹⁶ (Cullen, 1996) and helps the user relate the square to its surrounding urban context. This helps people to develop a coherent mental map of pathways through a quarter, a problem that Space Syntax often reveals in its analyses.

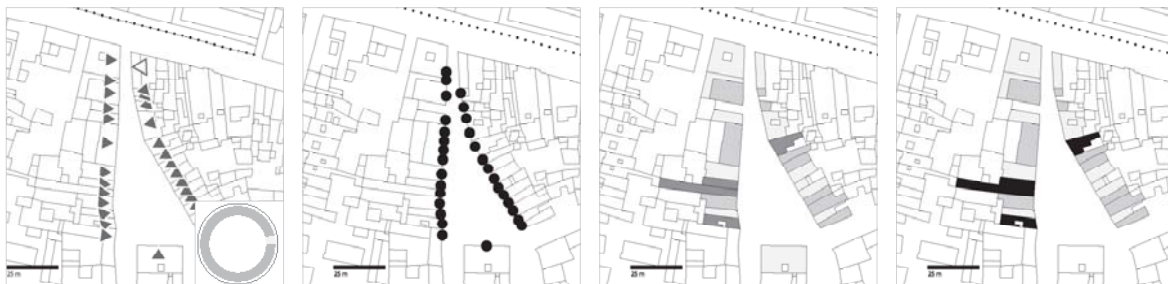


The quality and accessibility of a connection is as important as to have one at all

Access is probably the most fundamental of the four indicators defining this category. An urban space should offer unhindered access to all sections of society¹⁷.

Category: Vitality

The factors that have the biggest impact on the vitality of a square describe the elements that influence social interactions and the kind of ways in which the space is appropriated by its users. The key indicators are *Inward Focus*, *Dialogue*, *Character*, and *Security*.



Selected drawings showing indicators of the category 'Vitality'. From left to right: orientation (buildings facing the public), dialog (entrances to buildings), character mix and type of uses (extroverted or introverted)

Inward focus describes the orientation of the perimeter plots to the square. The Dialogue between the user and the space is mediated by the orientation, design and functions contained within the buildings that surround a public space.¹⁸ Of capital interest are publicly accessible, sometimes privately-owned buildings or spaces, such as churches, civic facilities, shops, restaurants, bars and galleries that are generally open to the public. In some cases users may in effect be paying indirectly to use such spaces but generally speaking, buildings and facilities that voluntarily allow the public realm to extend into their privately-owned spaces contribute to the public character and the vitality of an urban space.

Every kind of use has its own Character that can vary between introverted, neutral and extroverted. In their totality, they contribute to the overall character of the square.



Ground floor function 'Shopping' has a extroverted character

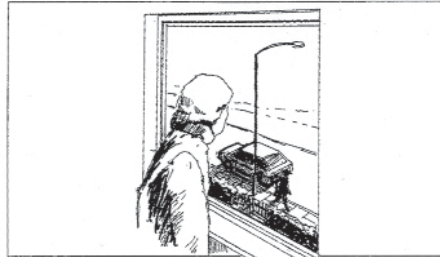


Ground floor function 'Bank' has a introverted character



Orientation of the perimeter facades and plots to the square

A sense of Security is one of the most commonly cited requirements for public spaces, but also one of the most neglected aspects and one that is more difficult to guarantee through later measures. Studies undertaken by Space Syntax have shown that the spatial configuration of an urban quarter and the constitution of the architecture have a significant influence on the general sense of security in an urban quarter.



Facades that open onto the square can provide a certain level of social control

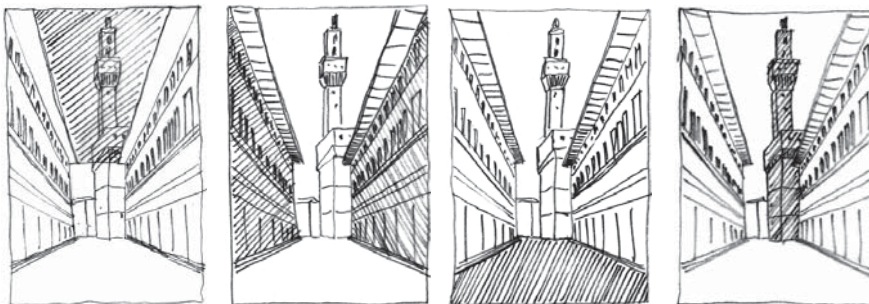
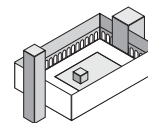


Orientation of the perimeter facades and plots to the square

Urban squares with buildings whose facades and entrances open onto the square at regular intervals generally offer the greatest sense of security.¹⁹ Residential apartments with windows overlooking public spaces, and cafés and shops that face public spaces make it possible for see what goes on in the public space and provide a level of social control, in turn heightening the actual and perceived sense of security²⁰.

Category: Spatial Quality

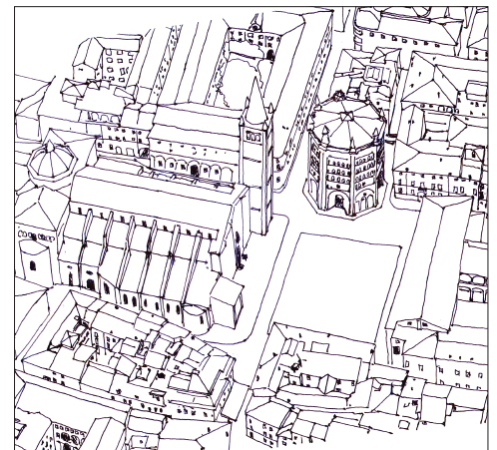
The emotional impact of all spaces, and of urban squares in particular, is defined to a large degree by the elements that define it: walls, floor, ceiling and any objects that may be in the space.



Space building elements: ceiling, walls, floor and urban furniture.

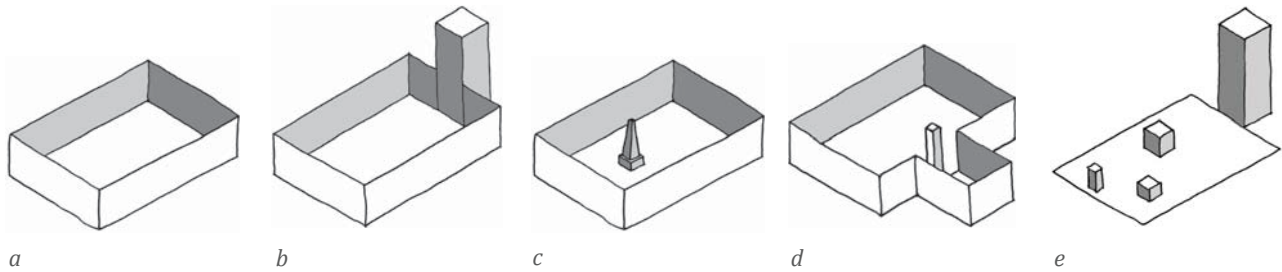
These elements do not in themselves describe the quality of a space but each element, through its constitution, size and proportion, its position in space and its relationship to other elements influences the quality of the urban space. They create spatial and atmospheric qualities through their elaboration and composition in terms of scale, figure, kind, topography, access, position and formation as well as their reciprocal interrelationships and have a significant effect on the overall spatial and atmospheric quality of the space.

Different authors describe the elements that define an urban space and one's experience of urban spaces in different ways.



Areal view of Piazza del Duoma, Parma

For Zucker the spatial impression is a product of the individual sizes of adjacent houses, of higher and lower eaves, of the relationship of length and breadth, of the location of the monuments and fountains, and of variations in the architectural treatment.²¹



Place typology following Zucker: the closed, the dominated, the nuclear, the grouped and the amorphous square.

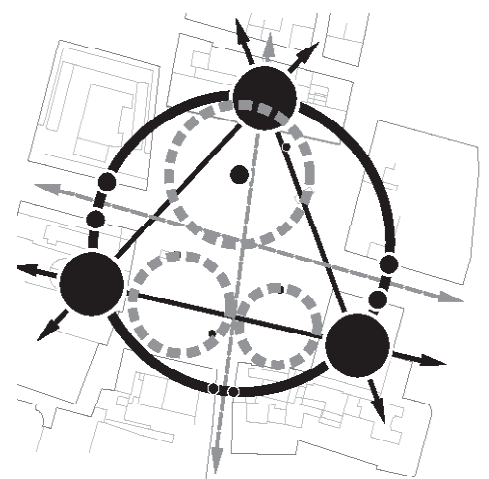
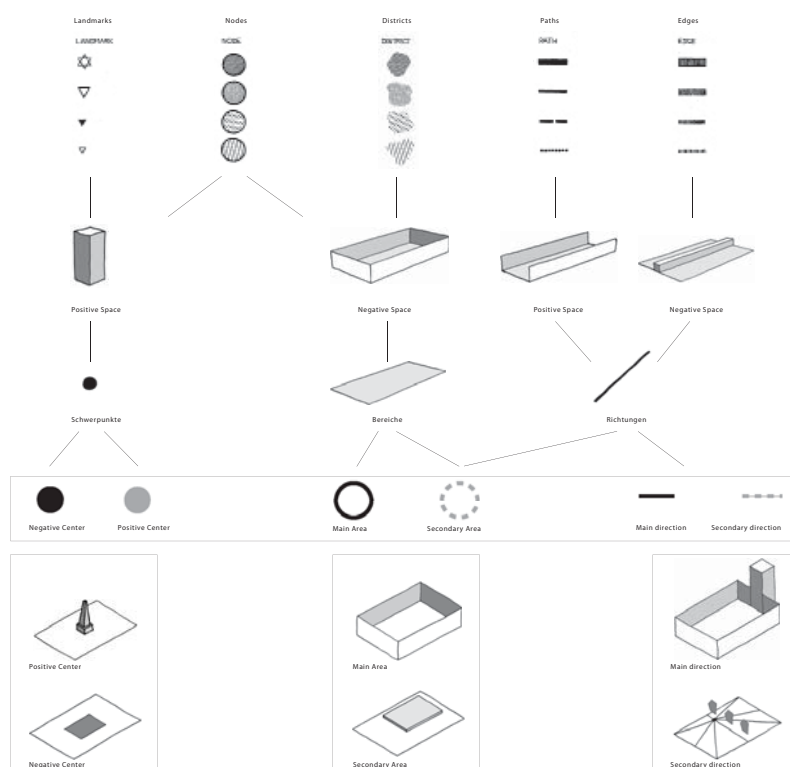
According to Ashihara what constitutes a space with urban qualities is defined by "The boundaries that surround a space, not just walls but also facades / Inside corners that define the sense of enclosure / Floor surfacing that extends to a boundary and makes the extents of spaces legible / Unity and harmony of the buildings that surround the space / A balanced relationship between the height of the surrounding walls and the distance between them"²² (Ashihara 1983).

Generally speaking, the quality of a space is deemed good when it provides appropriate and appropriately organized areas for those using it, pleasant conditions in which to spend time there and a sense of protection and comfort.

These spatial qualities can be described by three indicators: Centrality, Directionality and Enclosure.²³⁻²⁴



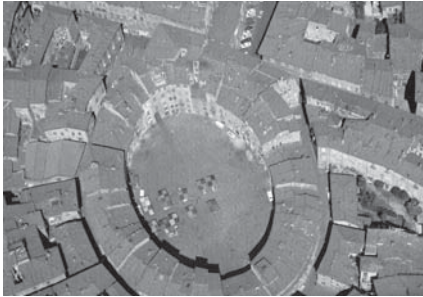
Areal view of Piazza G. Garibaldi. Parma



Piazza G. Garibaldi wit representation of three spatial qualities centrality, directionality and enclosure

Combining Kevin Lynch's 'perception of space' theory with the notions on the construction of space to describe three spatial qualities centrality, directionality and enclosure

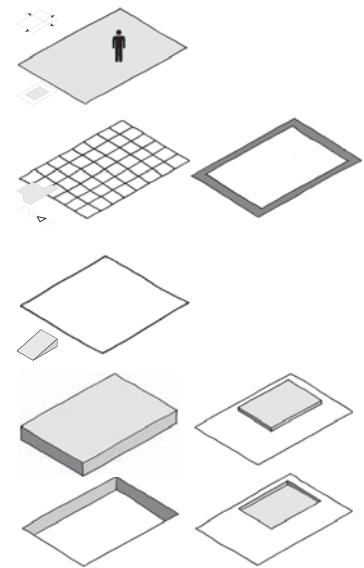
Centrality is generally created through the introduction of a mass, built object or point-like element within the space. The urban nucleus, as Zucker calls it, is perhaps the most elementary form of a square that defines centrality. The centrality of a space is a spatial quality that lends it a restful, stable constitution.



*Centrality through negativ space.
Piazza dell'anfiteatro, Lucca*



*Centrality through objects.
Piazza Piacentini, Bergamo*



Floor: generating closeness

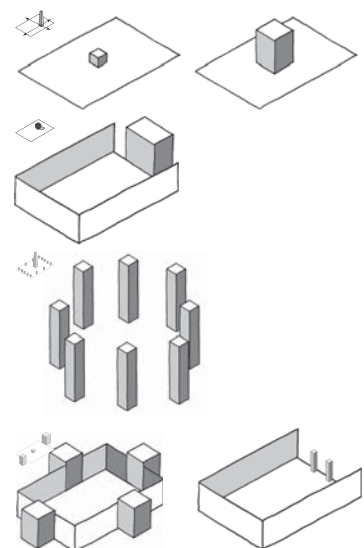
Like the point, the line can also be interpreted as a quality of an urban space that denotes *directionality*. Linearity is a product of orientation. One sense of directionality is a long, narrow space, such as what Lynch calls a channel, in which the visitor passes through the space in one direction. An alternative concept of directionality is its symbolic directionality that results from the tension between two bodies in a space, or from the serial repetition of an element in the space. Directionality can also be produced by sight lines or lines of movement, such as paths, axes or symmetrically arranged elements.



Directionality through rhythm and repetition. Rue de Rivoli, Paris



Directionality through objects, level and perspective. Piazza di Spagna, Roma



Objects: generating closeness

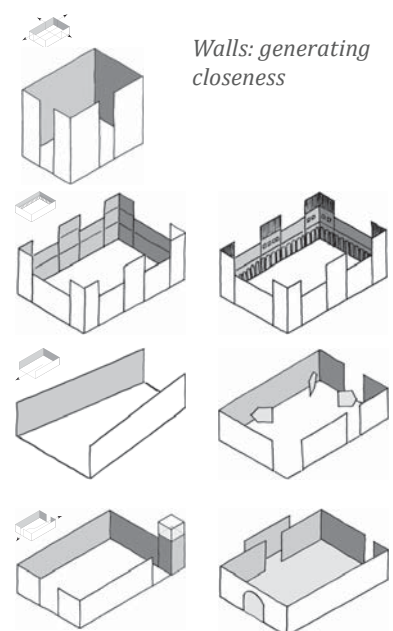
Enclosure is a spatial quality that can be produced by different kinds of elements but is most commonly a result of enclosing surfaces. The existence of bounding surfaces defines a space, what Lynch describes as an area that is separate from others and with its own character.



Enclosure through wall, pavement and objects. Piazza del Campidoglio, Roma



Enclosure through wall, and pavement. Place des Vosges, Paris



Walls: generating closeness

The *Friendliness* of a space describes how inviting it is, how it is equipped, how appropriate its design is with regard to other spatial qualities such as centrality, directionality and enclosure.



Piazzala G. Inzani, Parma

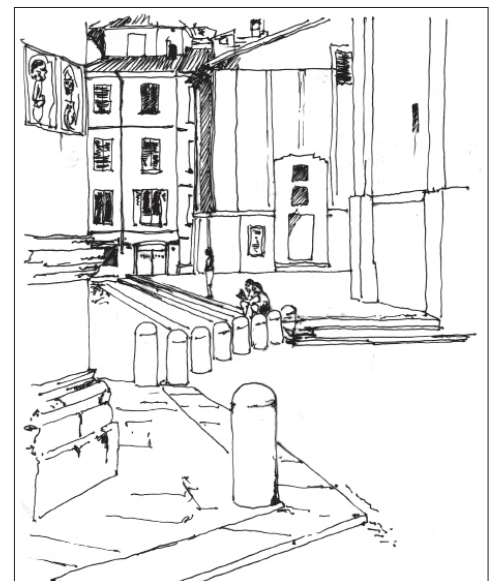


Areal view of Piazzala G. Inzani, Parma

The *atmospheric venustas* of an urban space is based on the interrelationship between the intensity of the spatial qualities centrality, directionality, enclosure and 'friendliness'. The spatial quality of an urban space is therefore especially pronounced when these properties are found in abundance.

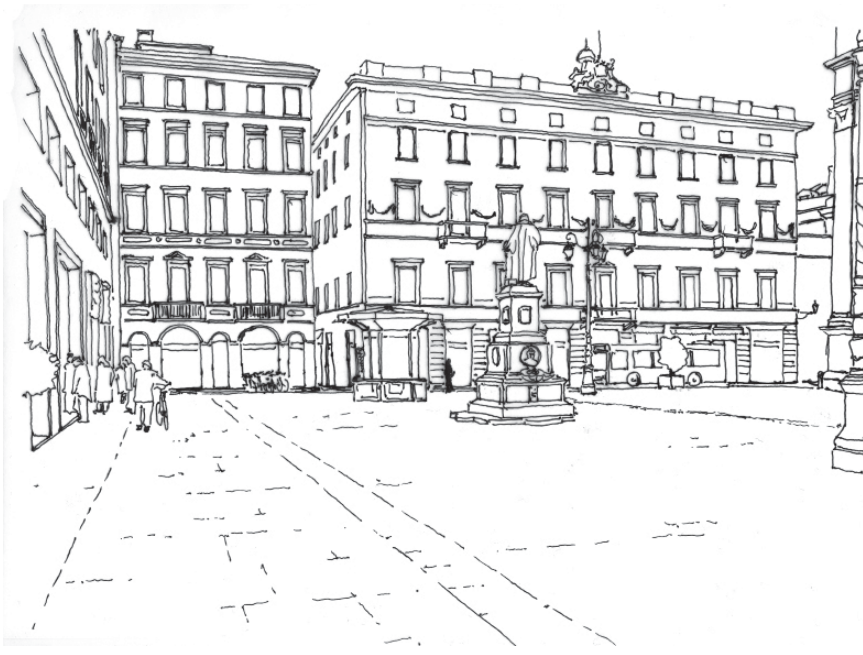


Piazza del Duomo, Parma



Piazza del Duomo, Parma

Findings from my analysis of urban squares in Europe led to a differentiation into four main types of urban squares:²⁵ the *salon* as a representative square that contributes to the identity of the entire city; the *living room*, essentially a neighborhood square; the *private room* as a square primarily for local residents; and the *communal space* as a square without a specific function but that simply by being there offers potential for activities. Each type of square corresponds to a particular constellation of indicators.



Piazza Steccata, Parma

Conclusion

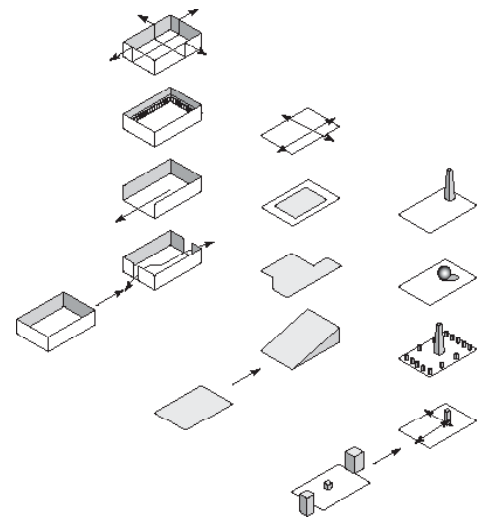
By undertaking an assessment using the categories and system of indicators of urban atmospheric and spatial quality described here, it is possible to identify deficits of public spaces. Through the implementation of appropriate, objectively assessable interventions it becomes easy to identify and implement improvement strategies. The effect and efficacy of such measures can also be assessed prior to their implementation with a focus on the desired outcome, impact and usefulness of the investment.

While specific spatial and social contexts call for specific policy proposals, I believe that the underlying principles of the set of tools presented here and the resulting urban interventions apply.

With this approach I hope to contribute to the ongoing debate on which kinds of spaces, whether public or private, are better able to respond to the economic, environmental, social and functional challenges of our time and of times to come. In this paper I have proposed a set of tools and ideas that could help us in the course of rethinking our cities and make a difference towards a sustainable future with beautiful places and a better quality of life.

Today's urban designers and architects must reclaim this atmospheric competency that was once inherent to the profession. Atmospherically well-tempered and quality-based urban design is more than ever about the art of engendering urban qualities of life.

The problems we are facing as planners, decision- and policy makers as well as as citizens require us to have the courage of our convictions in achieving our goals: a very real vision of our urban habitat and heritage transformed into beautiful, livable, sustainable and vibrant cities, in short: into places to be.



Untangling construction and qualities of urban spaces. Schemata.



*Areal view an sketch.
Piazza della Macina, Parma*

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Valentin Hadelich

Assistant Professor

Bauhaus University Weimar

Urban Planning and Urban Design 1

Bauhausstraße 7b

99423 Weimar

Tel.: + 49 (0) 3643 58 26 02

Mobile: +49 (0) 179 78 234 24

E-Mail: valentin.hadelich@uni-weimar.de