

# 10 PRINCIPLES FOR AN INNOVATIVE MODEL FOR THE 21<sup>st</sup> CENTURY UNIVERSITY: THE «EDUCATIONAL CAMPUS»

## *Diez principios de un modelo innovador para la universidad del siglo XXI. El campus educativo*

Pablo CAMPOS CALVO-SOTELO

*Dr. Arquitecto Universidad San Pablo CEU. Correo-e: utoplan@telefonica.net*

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**ABSTRACT:** University education has a higher purpose – to reinforce the formation of human beings and to provide the individual with an overall integrated training. This mission necessitates giving special attention to the correct arrangement of the physical space in which this central undertaking occurs.

**KEY WORDS:** space, university, campus, innovation.

**RESUMEN:** En este artículo se ofrece una propuesta innovadora de organización espacial para las universidades del siglo XXI. El espacio es una categoría central del proceso de aprendizaje, también en la educación superior. Por ello se proponen y sugieren ideas novedosas de organización del espacio universitario, atendiendo a las nuevas demandas docentes de la universidad del siglo XXI, en particular a la hora de diseñar nuevos campus.

**PALABRAS CLAVE:** espacio, universidad, campus, innovación.

### **Introduction: Education and Space**

**Q**UALITY IN EDUCATION IS INTIMATELY LINKED TO THE QUALITY of the physical setting in which it takes place. Any educational environment, including both architecture and open spaces, ought to express a special engagement with its specific natural, social, and urban context. It is critical to have some basic principles serve as guidelines before any campus plan is started.

To begin with, improperly understood foreign styles of architecture, particularly those whose origin, essence, or formal display would clash with local culture, should be avoided (Chaabane & Mouss, 1998).

University education has a higher purpose – to reinforce the formation of human beings and to provide the individual with an overall integrated training. This mission necessitates giving special attention to the correct arrangement of the physical space in which this central undertaking occurs. As history shows, the education of good citizens is one of the university's most important goals (Nussbaum, 1998). Further, and beyond a shadow of doubt, the quality of the university is directly connected to the quality of its architecture.

## 1. Modes of Innovative Learning and their associated spaces

### 1.1. *The European Higher Education Area (EHEA): an opportunity for quality and innovation across multiple dimensions*

The quality of education and training is directly linked to the availability of an appropriate space. Faced with the prospect of the European Higher Education Area (EHEA), and beyond, universities also have the onus of drawing up innovative models of learning in which education centres on the student rather than on the lecturer. It also follows that innovative educational spaces have to be defined in a similar fashion.

Changes in learning patterns are decisive if major progress towards quality culture is to be effective. As Francesc Miralles, an important researcher who specializes in the adoption of Information Technology (Polytechnic University of Catalunya), says:

Techniques of Active Learning. The involvement of the students in their learning process is primarily manifested in self-study or in the cooperation between the students themselves (Miralles, 2006: 3).

Students will clearly be expected to assume an active role in learning (Lonka, 2008; Miralles, 2006).

### 1.2. *Innovative learning: modalities and associated urban & architectural spaces*

In an effort to more closely bring together models of innovative learning and the architectural dimensions associated with them, a simple system of classification has been devised (below).

This system makes no claim to establish international standards. It draws on various sources: first, the experience of a number of Professors of Architecture in Spain; and second, on recent research carried out in the area of School and Campus Planning (Nair & Fielding, 2005; Segovia, 2003; McCombs, 1997; Perkins, 1992). The proposed system is offered as a heuristic outline for universities currently faced with having to adjust their plant, buildings, and facilities to the conditions emerging from the EHEA.

The following learning modalities are considered: Formal Lecture (*traditional, interactive, or panel-based*); Polarized (peer tutoring); Idea-sharing Sessions; Team Work; Brainstorming Sessions: («*soft-seat*»); Technology-based Sessions; Individual Study; Distance Education; Student Presentations; Performance and Learning based on other art forms; Educational Travel and Study; Mobile Learning (based on mobile technologies such as i-Pods and cell phones).

This simple listing of some quite well-known teaching methods is included in this article so as to set up connections between the alternative learning modalities and the space-types which can host them on different physical scales within the University.

Given the typology (shown above) of the various physical arrangements associated with innovative learning, we can now deal with the spatial frameworks into which they may be placed. As we will argue later, the name given to the overall environment that ideally brings together all aspects involved in the creation and transmission of knowledge is that of the «Educational Campus».

Since urban planning is predicated on an environment of exchange between society and university, and since architecture defines the structures within which interaction between users is crystallized, the over-riding priority ought surely be the integration of quality education, the main driving force behind the EHEA, with a parallel quality in urban planning and architecture. Viewed in terms of its impact beyond academia, quality in architecture will bring about a more extensive integration of the institution with its immediate environment and will thereby stimulate innovation in the latter's economic, social, and cultural fabric. This has been demonstrated by some excellent recent examples, such as the Pompeu Fabra University in Barcelona, the University of La Laguna (Canary Islands), and the Polytechnic University of Cartagena, where the new University buildings are helping to renovate the old core of this fascinating 3,000 year old, Spanish Mediterranean city.

Enhancing and sustaining student motivation (both at universities and schools) is the *sine qua non* of teaching and learning. Recent studies, such as Pink's: *A whole new mind: Moving from the Information Age to the Conceptual Age* point out that IQ accounts for a reduced portion of career success: just 4-10% (Pink, 2005). Consequently, we must ask ourselves what factors account for successful student learning. This fascinating topic has already been researched in some depth by specialists, such as Columbia University professor Carol S. Dweck (Dweck, 1986) and Jutta Heckhausen (Heckhausen & Heckhausen, 2008). However, from the point of view of an architectural campus planner, physical space, in combination with curiosity, self-betterment, ambition, institutional environmental influence, and general well-being, can stimulate motivation in the acquisition of knowledge; therefore, the design of University sites should ensure a physical space that helps in sustaining the HEI's overall quality.

In campus planning, it is virtually axiomatic that all available internal spaces serve as potential and active «learning venues»; this casts aside the inertness that earlier visions of learning laid upon them. Amongst the various purposes assigned them, one of the most crucial is their accommodation of the various functions outlined earlier. The topographic scheme set out below shows how different sites within the University may be used to extend the variety of innovative «learning venues». It falls into two parts, the first corresponding to undertakings on a campus scale, the second to those of individual buildings.

## I. Innovative Spaces - Campus Scale

The following types of facilities and space may be transformed into «learning venues»:

- Academic buildings (classroom and departmental buildings)
- Research buildings
- Administration buildings
- Library, as well as its modern version: the Learning and Research Resource Centre
- Service buildings
- University residences (students and faculty)
- Sports facilities and buildings
- Alumni Centre
- Natural open spaces
- Green and garden areas
- Alternative sites
- Refectories and cafeterias
- Wi-fi spaces and areas
- Spaces for outside cultural exhibitions and events

## II. Innovative Spaces - Individual Buildings' Scale

Inside each building, the following areas can be adapted:

- Entrance
- Corridors and interior communications: the «Educational Highway»
- Classrooms
- Offices
- Laboratories
- Leisure and Recreational Spaces.
- Alumni Halls
- Exterior areas linked to the building
- Alternative places
  - Refectories and cafeterias
  - Wi-fi spaces and areas

- Spaces for outside cultural exhibitions and events
- Places for copy-service
- Exhibition space for university cultural events.

This classification sets out a variety of venues that can be adapted as new learning units; these can complement, and expand, the idea of the traditional classroom as the sole «learning space» that served the university for centuries. Obviously, traditional classrooms remain, for, as Nair and Fielding pointed out in *The Language of School Design-Design Patterns for 21st Century Schools*:

The classroom is the most visible symbol of an educational philosophy. It is a philosophy that starts with the assumption that a predetermined number of students will all learn the same thing at the same time from the same person in the same way in the same place for several hours each day (Nair & Fielding, 2005: 17).

## 2. The Ten Principles of the «Educational Campus»: values to foster and proclaim

Education is a spatial act.

This conviction relies on the fact that the human contact that feeds it must of necessity be developed within a physical ambit. Consequently, the built environment plays a transcendental role in the integral formation of the person, that formation being the true mission of the university. It is necessary, therefore, to design places devoted to education with an architectural high quality that contributes to the intellectual, affective, and social construction of the university student.

As a global solution, the philosophy of the «Educational Campus» is hereby proposed.

A Campus will be «educational» if it incorporates and testifies to the values addressed in the following 10 principles:

**1.-Utopia and integral planning.** Driven by the ideal of Utopia as a transformative energy, the design of a University environment must be developed using integral planning strategies which translate into tangible form the necessary utopian principles which define an evolution governed by a sound degree of freedom and flexibility in space-time. This occurs under the premise that the proper conception of a university precinct is not the formulation of an urban-architectural object but the definition of a whole process.

**2.-Learning community.** The creation of a learning community stimulates personal contact and functional integrality. This fosters the consolidation of an entire learning community in which the human scale prevails. This generates a «feeling of belonging» both within the university and in its individual members. Through an intentional design, the physical scene must set up empathies with the human beings who inhabit it, in such a way that urbanism and architecture act as incentives for people to develop, with motivation, their activities of study, research, relationships, and general living. Creating a «sense of place» for the campus users implies the correct understanding and use of «learning communities» (Gabelnick, 1990). Physical space can never entirely be replaced by the «virtual campus», which nowadays is one of the greatest threats to traditional educational values.

**3.-Spatial harmony.** Equally essential is the crystallization of a global aesthetic for composing urban and architectural spaces, so that they become a part of the collective memory of society. The university's physical implantation must transcend the mere supply of available built areas; this transcendence means getting involved in visual education by means of designs which generate coherent arrangements where attention is paid in similar ways to built volumes and open areas. The campus, as the embodiment and material reality of the university, will turn out to be the first lesson that a student receives, for it will be a «three dimensional textbook» with an architectural corporeity.

As Orr remarked in his 2002 publication, *The Nature of Design*,

The curriculum embedded in any building instructs as fully and as powerfully as any course taught in it (Orr, 2002: 127).

**4.-Affective and intellectual embracement.** This necessitates the physical creation of a spatial metaphor of «affective and intellectual embracement», through an arrangement of the precinct, the conception of which intentionally activates and affectively impacts the individual and awakens empathies in the community. The layout, volume, shape, and texture of the different architectural pieces within the campus will have the mission of endeavoring to establish the psychological wellness of each university inhabitant.

**5.-Nature and art.** The incorporation of nature as a cultural value will see it integrated into a global assembly ruled by the premise of «unity within diversity», in which the different components, buildings and open spaces, build up a physical scene. Here, the cultural product can be expressed as an academic content within a locus for study and research. In addition, artistic works can be exhibited either inside or outside, to complement through their contemplation the formative quality of the environment.

**6.-Image and accessibility.** The external projection of a sound university image, consistent with its transcendental missions of teaching, research, and social commitment, fosters values related to conceptual and physical accessibility and exerts sensitivity towards the culture and traditions of the place. It thereby enhances expression of its full social, geographic, cultural, and architectural meanings. Mies Van der Rohe believed:

Architecture is the will of an epoch translated into space (Mies Van der Rohe, 1923).

**7.-Adaptation to the environment and sustainability.** An adequate response by urbanism and architecture to geographic and climate conditions promotes exemplary solutions in environmental, bioclimatic, and sustainability issues. This goal is achieved through the choice of materials, technical and constructive solutions, and the incorporation of mechanisms that foster the use of renewable energies.

**8.-Memory and avant-garde.** The urban-architectural paradigms of memory, inherited from the history of spaces, serve as an intellectual resource for design. In accordance with this, new plant projects can be generated with a high degree of formal freedom. In addition, preexisting buildings and uses, which testify to positive changes from former functions, can be adapted and must contribute to a

sense of contemporaneousness and to being at the cutting edge. Their presence invigorates and reinforces the intellectual identity of the university.

Evolution is fascinating just because it has the potential to offer explanations about phenomena that would otherwise appear to have no explanation (Blesser & Salter, 2006: 317).

**9.-Relations between university and city.** The generation of synergies between university and city reinforces the active presence of university people and spaces within social and urban contexts; this can also operate in a reciprocal sense. It fosters innovation and invites other institutions to share the global university project for the achievement of common goals.

**10.-Innovative teaching and learning modalities.** This concentrates on the design of spaces which host and foster the application of innovative teaching and learning modalities, housed under a global pedagogic project. This should be done in such a way that the physical spaces that are alternative to the conventional classroom abandon their obsolete role in teaching issues. They are thereby transformed into intelligent places, stimulating a positive change in the attitudes of the professor-student relationship.

### 3. The «Educational Campus» in Spain: some recent projects

Since his launching of this innovative concept, the author of this article (Pablo Campos, and his firm «Utoplan») has planned some campuses, following the principles of the «Educational Campus».

Founded in 1218, this institution planned in 2005 an innovative new campus, which was the recipient of the Honor Award of the Organization «Designshare: The International Forum for Innovative Schools»; this was published by the OECD (OECD, 2005).

From its early planning, the Villamayor Campus was understood as a cultural design, rooted in the local geography, architectural heritage, and academic tradition.

The campus design develops an innovative interpretation of traditional university and city typologies, like the «plaza» and the «cloister», which define medium-small scale areas to foster human contact.

Nature (the river, indigenous vegetation, and local cultivation) serve as spatial elements which are integrated into a unified scheme; the Botanical Park will have 2 miles of indigenous trees and plants interacting with the university, its architecture, and educational life.

The town of Villamayor has a strong tradition of sandstone quarries; the campus conception refers to the sandstone expressiveness (blocks) and extractive techniques in order to design architectural volumes inspired in those sources.

The Villamayor Campus can be understood as a human scale space.

From its early development, it has been adapted to the European Higher Education Area (EHEA) parameters.



*Educational Campus in Villamayor, University of Salamanca (Spain), 2005*

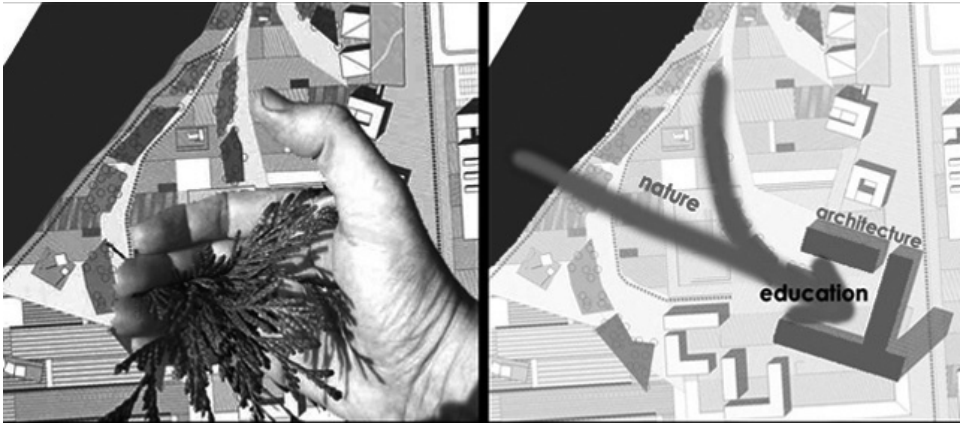


Figure 1. Graphic concept of the «Educational Campus»  
(Villamayor Campus, University of Salamanca).

The new project for Madrid is also built on the same innovative concept of urbanism and architecture, i. e. the «Educational Campus». In addition, in this particular case, the project also exemplifies sustainability.

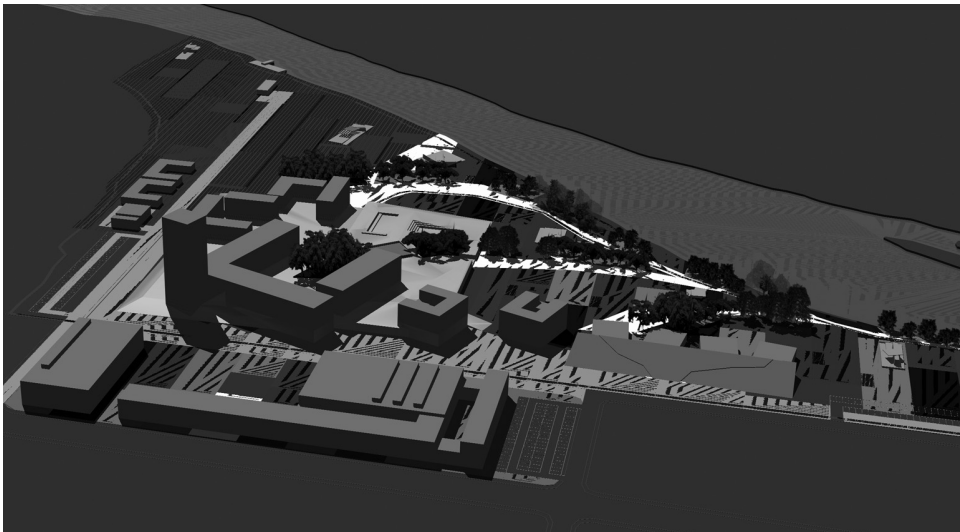


Figure 2. Project of the new «Educational Campus»,  
Villamayor, University of Salamanca (2005).



The Spanish energy company Iberdrola commissioned a project to build a campus dedicated to the corporate training of its employees on the outskirts of Madrid.

The philosophy of this campus project is based on two aims:

1. To create an «Educational Campus», where architecture and nature serve as cultural elements conveying values of environmental harmony and quality.
2. To generate an urban/architectural space using renewable energy to promote sustainability and illustrate the identity of the company promoting the campus.

*The Educational and Sustainable Campus, Madrid (Spain), 2007*



Figure 3. Project of the new «Educational & Sustainable Campus», Madrid (2007).

The Madrid campus project incorporates basic geometric shapes. There are two reasons for this: firstly, to encourage appreciation of the visual meaning of different volumes; and, secondly, to associate each shape with types and uses of renewable energy. A section dedicated to the sun will be characterized by rectangular shapes (a symbol of stability and passiveness), a section devoted to water will take the form of triangles (representing movement and instability), while a section for wind will incorporate circular shapes (evoking dynamism).

The design incorporates energy from renewable sources.

Ecological binding materials such as recycled powdered glass will cover paths and road surfaces.

As regards the architectural structure, a double skin system with wood on the outside and glass on the inside will be used, along with adjustable wood shutters sliding on metal frames.

*Educational Campus, University of La Laguna (Spain), 2009*

The University of La Laguna, located in the Spanish Canary Islands was founded in 1792.

After a long period of complex evolution, the institution has been planning its future over the last few years. For this purpose, the University has chosen the principle of the «Educational Campus», which brings an outstanding opportunity to create a modern, deeply rooted, and sensitive new academic space.

The Central Campus is placed adjacent to the magnificent historic area of the city of San Cristóbal de La Laguna (*UNESCO World Heritage*, 1999).

In 2009, the institution planned the requalification of its central space (adjacent to the *Plaza Cruz de Hierro*). To achieve a sound transformation of this traditional location, the university decided to renovate the great open space, removing the current parking lots and redesigning it as a new pedestrian environment (enclosing a new botanical garden). In order to reinforce this urban nucleus, a new building will be erected: a Learning and Research Resources Center. The outcome of such a modern transformation will be the birth of a big urban and academic *agora*, that will exemplify the close union between university and city.



Figure 4. Project of the new «Educational Campus».  
(Learning & Research Resources Center), University of La Laguna (2009).

The preceding 3 projects have also been undertaken as genuine research projects in order to investigate educational solutions that could benefit other campuses. This was also the case of the master plan for the University of La Coruña (2009); the project for the Universidad Autónoma de Madrid UAM + CSIC (2009), which



Figure 5. Project of the new «Educational Campus»  
(Elviña Campus - EHEA-Pavilions), University of A Coruña (2009).

was recipient of the Award «Campus of International Excellence» by the Spanish Ministry of Education, also falls into this research category.

#### 4. Conclusion: University, Utopia, and Planning

Planning a campus is a redoubtable undertaking since the principle of human scale must be compatible with the organization of the urban layout of a very large site.

As a restatement of the Utopian vision inserted into the mainly utilitarian priorities that higher education policy calls for today, the «Educational Campus», which emphasizes both the spiritual and the ideal, the basic components of Utopianism, can help Universities in their unceasing search for excellence.

Education is a spatial act, it must be noted again.

University, urban planning, and architecture provide the frame for an on-going and ever-renewed dialogue between buildings and individuals, a dialogue, moreover, which transcends the mere supply and logistics of available areas.

The new concept of the «Educational Campus» has been taken up by the programme «Campus of International Excellence», which was launched in 2009 by

the Spanish Ministry of Education. Spain, it should be noted, is a country where there are 77 Universities (50 of them public, and 27 private).

The designing of urban and architectural spaces is an all-consuming vocation for two main reasons: first, those spaces express —or can be made to express— certain values, for instance, sustainability and aesthetics; second, they can sustain creative, human contact, as the basic value on which the university is founded.

Good architecture fosters good education... but, unfortunately, the opposite is also true.

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