

# INNOVATIVE EDUCATIONAL SPACES: ARCHITECTURE, ART AND NATURE FOR UNIVERSITY EXCELLENCE

## *Espacios educativos innovadores: arquitectura, arte y naturaleza en el proceso de la excelencia de la Universidad*

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ABSTRACT: Education is a spatial, affective and collective act. Consequently, innovation in Education is narrowly connected with the quality of its buildings and associated spaces. This principles support a transcendental idea: the cultural and artistic values of a campus (Architecture, Nature, works of Art) must be projected internally and externally as paradigms for the University community and for society in general, as they have the potential to enrich the teaching&learning processes. Planners in charge of the conception of any campus must be aware of the transcendence of such a mission. It is necessary to underline the key role that physical spaces have to play in the evolution of Universities towards innovation, as they host the human contact needed to achieve the true mission of Universities: the integral formation of a human being. The design of any future University seat must be driven by an aim of excellence; for such a critical purpose, this paper traces the innovative «Educational Campus» philosophy, as a conceptual&operational tool to promote the modernization of Universities; as a modern paradigm, it can be applied to encourage and guide the processes of positive transformation of Institutions of Higher Education. Actually, this emerging modernization pattern has being used by the Spanish Ministry of Education in its Program «International Campus of Excellence» since its first edition in 2009.

KEY WORDS: campus; education; university; architecture; art; nature; innovation.

RESUMEN: La educación es un acto espacial, afectivo y colectivo. En consecuencia, la innovación en la educación está estrechamente ligada con la calidad de sus edificios y espacios asociados. Estos principios apoyan una idea trascendental: los

valores culturales y artísticos de un campus (arquitectura, naturaleza, obras de arte) deben ser proyectados internamente y externamente como paradigmas para la comunidad universitaria y la sociedad en general, ya que tienen el potencial para enriquecer a docentes y procesos de aprendizaje. Los planificadores encargados de la concepción de cualquier campus deben ser conscientes de la trascendencia de tal misión. Es necesario subrayar el papel clave que los espacios físicos tienen que jugar en la evolución de las universidades a la innovación, cuando reciban el contacto humano necesario para lograr la verdadera misión de las universidades: la formación integral del ser humano. El diseño de cualquier futura sede de la Universidad debe ser impulsado por un objetivo de excelencia; para tal propósito fundamental, este trabajo traza la innovadora filosofía «Educational Campus», como una herramienta conceptual y operativa para promover la modernización de las universidades; como paradigma moderno, se puede aplicar para alentar y orientar los procesos de transformación positiva de las Instituciones de Educación Superior. En realidad, este modelo de modernización emergente ha sido utilizado por el Ministerio de Educación español en su programa «Campus de Excelencia Internacional» desde su primera edición en 2009.

PALABRAS CLAVE: escuela; educación; universidad; arquitectura; el arte; la naturaleza; la innovación.

### Introduction: University, Architecture and social relation

IT MUST BE ASSUMED AS A FIRST STATEMENT that the University's ultimate mission is the integral formation of the human being, with the overall goal of building up as future committed citizen (Nussbaum, 1998). Keeping this global philosophy in mind, it's feasible to develop a suitable approach to the conception of the various structures of which the university organism is composed: mission, vision, values, management, educational model, connections to the social and urban context, and the urban and architectural dimension. This last component, Architecture, becomes finally a guarantee of a critical virtue that must be present at any University seat: the human contact that enables a sound formation. Platonic thought viewed education as a means to make of the student of today the citizen of tomorrow, and this vision retains its full vigor even now. All over the world universities are in the midst of change, and there is a clearly perceptible need to forge a new commitment to the community. Education is a spatial event, because this form of human interaction takes place in a physical setting.

The importance of the physical frame of education cannot be stressed enough, for it is the embodied stage on which is enacted the necessary contact that underpins the exhaustive construction of the intellectual and social being; this is its mission. Antonio Pulido, a professor at the Universidad Autónoma de Madrid (UAM), provides the following definition:

«Mission» means the essential and at least relatively permanent function of the institution; its ultimate purpose and *raison d'être* (Pulido, 2009).

As an irreplaceable ingredient of that *raison d'être*, Architecture plays a role in human education; it becomes imbued with a second, emotional component by which

any process of human development must be guided. The present juncture, in which the concern is to harmonize Higher Education with its wider context, is but a fresh instance of the long-standing historic bond between university and society. And it is here that architecture plays a vital role, crystallizing a global educational setting in which these two entities can meet. The modern University is the stage on which the shaping of the human being is enacted, and in this process close ties must be nurtured with the social and urban context; actually, keeping the two apart would be self-contradictory. Individuals enhance their social integration to the extent that they are personally capable of optimizing their complement of values; conversely, society programmes its collective knowledge by means of the educational process. Expressing it all with other words: Educate to live in the community; live in the community to teach and learn.

As already expressed, Education is a spatial act. But in addition to that, it necessarily has to possess an emotional significance (affective act), as well as a group-format (collective act). This further quality is also connected to architecture, as expressed by Aldo Rossi:

I use the term architecture in a positive and pragmatic sense, as a creation inseparable from civilized life and the society in which it is manifested. By nature it is collective (Rossi, 1980).

### 1. Architecture and motivation: places *versus* spaces

That education should be a spatial, emotional and collective act carries major positive consequences for Universities. The direct relationships forged among the members of a community of learning & research goes beyond merely contextual circumstances. Proximity among the actors involved in the learning process is by no means a neutral incident of the shaping of an individual: it becomes a decisive factor in the growth of his or her knowledge and values. The set of knowledge that a group is capable of acquiring invariably outstrips each individual's private store. Real coexistence stimulates educational growth. This was the notion that Jaime Castrejón encouraged his readers to entertain:

The constrained living space of our time forces us to live in closer contact with others, and this fact lends weight to the idea of fostering communal living as part of education (Castrejón, 1982).

Looking at the European and Spanish historical evolution of Universities, it must be remarked that the town, the ideal city as a paradigm, has never been entirely cut off from teaching institutions. The University has striven to achieve a *City of Knowledge* clothed in excellence. For almost ten centuries, innovation in education has taken pains to be embodied in a spatial apparatus of analogous innovation and excellence. Throughout its long history, the main types of University have all been accompanied by their own ideally suited architectural format.

The Medieval University pattern was at one with the cloister; the traditional European university had an identity bound up with its polycentric urban seats; the paradigm of the American campus instantiated the ideal of the self-contained city. It

must be remarked that the American paradigm came back to the Old Continent through the design and construction of the outstanding project of the University-City of Madrid, which was the first campus ever conceived in Europe under the transoceanic campus model, as was published in the book *The Journey of Utopia. The story of the first American style Campus in Europe* (Campos, 2006).

Education should be viewed as a form of human contact, which can be forged only in the settings offered by Architecture. The combination of both (Architecture and human contact) is the best way to transform inert *spaces* into active *places*, where students can increase their *sense of belonging* to the University. Susan Painter, a former professor at the University of California at Los Angeles (UCLA) and the author of many valuable papers on the spatial psychology in human education, emphasizes that every campus has three modalities of interrelated spaces: social spaces, private spaces and learning spaces (Painter, 2003). This simple triad can serve as the focus for much of the upcoming debate on the rethinking of higher education complexes, on the understanding that the processes concluded there go beyond a purely instructive or curricular function. Under this philosophical approach, it must be underlined that urban&architectural places designed to house activities of education and research ought to fulfill functions beyond those of service as a part of the built context. Recent studies, such as Pink's: *A whole new mind: Moving from the Information Age to the Conceptual Age* point out that IQ accounts in a reduced portion of career success: just 4% - 10% (Pink, 2005). Consequently, we must ask ourselves what factors account for successful student learning? Amongst others: curiosity, feeling of wellness, visual, psychological and environmental comforts, positive perception of shape and form, etc. All have then to be born in mind before starting the formal design of a Campus (or of any human settlement) (Alexander *et al.*, 1976). Another recent study suggested a stable social context might reduce attrition rates, and help students achieve academic and social aims (Wisely & Jorgensen, 2000). But, it's necessary to underline now that an appropriate physical environment may foster positive attitudes, which may build into excellence in education itself, as expressed by the author of the present paper in the OECD Review *Programme on Educational Building Exchange* (Campos, 2008). Thus, a university's Architecture should be oriented to achieving such fundamental objectives, the most relevant being the student motivation, as the most important energy that can be transmitted to those future committed citizens, in order to encourage their learning attitude and their aim for innovation.

In summary, education is a spatial, collective and emotional event, and such a triad connects as a consequence University, Education, Architecture and human contact.

## 2. Innovation in Education – Innovation in Architecture

The quality and innovative values of Education are narrowly connected to the quality and innovative features of the physical frame where it is hosted. As a first consideration at this point, it must be mentioned that the interference of foreign styles improperly understood should be avoided, in particular those whose origin, essence or formal display would not fit in with local cultures (Chaabane & Mouss, 1998). Higher Education must carry out the superior mission of providing an integral formation for the human being, building up a future committed citizen, professionally prepared to develop his social activity. This is the reason why a special emphasis on

the proper arrangement of the physical spaces in which this sublime enterprise has to take place should be made. In that sense, some principles are critical, as guidelines to keep in mind before starting any Campus plan. As a first approach, as has been already explained before, the interference of foreign proposals and styles should be avoided, in particular those whose origin, essence or formal pattern would be somehow strange to the local culture.

The University Architecture incarnates an interactive dialogue between buildings, Nature, Art and individuals. Its planning process has consequently to excel a mere provision of available areas. It would be advisable that, in the project development, open spaces and Nature (understood as a cultural value) were as essentially taken in account as the built volumes. But also the clear artistic intention in the design of the complexes must be a mandatory requisite. As expressed by Thomas A. Gaines:

Unlike the two-dimensional art of painting, the three-dimensional art of sculpture, and architecture, in which the fourth dimension is function, a campus has a fifth dimension: planning. The well-planned campus belongs among the most idyllic of man-made environments and deserves to be evaluated by the same criteria applied to these other works of art (Gaines, 2001).

All work in Architecture will just be an empty shell if it is not firmly related to the human beings who use it. This is a devastating outcome, as the group SITE noted, particularly since Architecture is the only genuine public art form (Restany & Zevi, 1982).

It is now time to come back to one important statement: that the innovative Architecture builds up the innovative University. It is of basic interest to insist on the necessity to provide intelligent and courageous educational schemes that can benefit from the adequate architectural inspiration. This conviction lies on three basic arguments: culture, character and function. Reviewing those three concepts along the nine centuries of the University life, we will be able to evaluate the different «footprints» that the educational innovative paradigms have left in the urban scenario.

### 2.1. *Culture*

It must be understood as a necessary component of universities, as it implies the need of a rational adaptation to the social, natural, urban and architectural circumstances, and to heritage, taken as a global frame. In order to understand the specific task of this relation, we can start from the definition of heritage itself, as described by Marina Waisman:

The particular characteristic of heritage is precisely the relationship between the historical object and its environment (...), this unit presents new meanings which cannot be provided by one of the elements alone (Waisman, 1995).

Taken as a first argument, culture comes to reinforce the central statement that a good architectural frame is necessary for qualified teaching&learning processes. And it is directly addressed to the heart of the Institution: by virtue of its pre-eminent cultural vocation, the University must be the cradle of the artistic and intellectual avant-garde trends of its time. As an outcome and testimony of this challenge, the

Architecture is called to become the showcase and dynamic laboratory of the contemporary Art, a sublime exponent of the humanistic concerns of each historic period. Thus, the University physical body must be moulded with extreme sensitiveness to the whole educational model, aspiring to the reinforcement of humanly scaled communities of learning and research.

## 2.2. *Character*

As a preliminary approach to this relevant argument, the *character* of a project could be understood as its strength and originality, differentiating it from more conventional or prosaic works. When thinking on a series of formal answers to a same programme, the particular *character* of each of those would be the criterion to differentiate them, the artistic expression of their internal personality. When intelligent and committed pieces of Architecture and open spaces bear such *character*, they will all be significant spatial facts, with a particular identity, representing each one of them an individual version born out of the planner's mind. If they don't, they will just consist in meaningless transcriptions of the functional programme. As we are referring to such an exceptional Institution as a University, this second argument –*character*– should be deeply contemplated. Intentionally conceived under an aim for innovation, Architecture is capable of transmitting subliminal messages, evoking poetic dimensions, and providing new whole significations; as indicated by Paul Venable Turner:

The campus serves the institution not only by satisfying physical needs, but by expressing and reinforcing these ideals or goals (Turner, 1984).

Consequently, there must be a kind of creative attitude, in order to produce a solid impression in the users, an «engraving» (the Greek sense of the term *character*) of its contents that would remain in them. Architecture must therefore become an autonomous sphere of expression. If such arguments are applied to Universities, it is unquestionable the key role that Architecture has to play in relation with its external image and personality. The Spanish philosopher José Ortega y Gasset defined the University as the «institutional projection of students» (Ortega y Gasset, 1930). Understood along such an interpretation, the Architecture becomes its physical manifestation, the material body of its essence. Among the extensive repertoire of examples we can find through History, it is the splendid *plateresque* façade of the University of Salamanca one of the foremost paradigms of symbolism. Built during the 16<sup>TH</sup> century, it has arrived to our time as an emblematic architectural *stamp*, a testimony of the enthusiasm of the Spanish King and Queen Isabel and Fernando, as an honorific tribute to the magnificence of the *Alma Mater*, which such an outstanding influence had on the Latin American Universities, as has been expressed by the Spanish historian Águeda Rodríguez Cruz (Rodríguez, 1989).

In a metaphoric reading, this vertical front constitutes a kind of stone tapestry, which announces with solemnity the presence of the University to its social and urban context. The city, conscious of this fact, decided to open up a small piazza just in front of the superb masterpiece, naming it *Patio de Escuelas*. In this way, a clear space with a certain cloister flavour was composed, favoring the view of the incomparable

building. It originated a significant cardiac *city-room* or *Agora*, a sort of rectangular court in which the urban fabric is expanded in order to make more visible the described *plateresque* façade, (which is probably the most divulged icon of the whole Spanish Universities).

Something similar can be identified in the evolution of the French Sorbonne. When in the seventeenth century Cardinal Richelieu erected the new grand Church, its West façade acted as an impressive institutional symbol, facing its surrounding neighborhood of Paris. With the intention to magnify its presence, several houses were demolished just in front of the emerging façade, generating a small piazza where the University church could «breathe» properly.

As explained, by means of different spatial strategies, in Paris and Salamanca, the city and University have both contributed to their reciprocal enrichment, taking advantage of the crucial impulse transmitted in form and spirit by their Architecture *character*.

### 2.3. *Function*

In general, human activities must be developed within proper spaces, which are correctly arranged for their utilization. From Classical Rome comes the *Vitruvian* enunciation of the triptych «*utilitas, firmitas, venustas*» (utility, stability, beauty), to point out the three virtues that must be present in any good work of Architecture. Universities cannot ignore this obligation at all; furthermore, they must become examples of correct functionality, including a sensible relation with surrounding urban contexts. Campuses are called to offer a wide range of academic activities, as to offer the needed variety of other ones that make users feel comfortable enough. We have already entered the twenty first century; in such a chronological context, the University should not focus exclusively on teaching&learning issues: it must pay an adequate attention to extracurricular lives. But it would be certainly a poor bequest that one left to us by Education Architecture if it only fulfilled these pragmatic requirements, those related to the functional role of a Campus. As explained earlier, innovative Universities must be exemplary as testimonies of culture and character, «*dressing*» themselves with innovative buildings and spaces where to host qualified Architecture, Nature and Art as active components of the global University mission: the integral formation of a human being as a future ethically committed citizen.

## 3. Higher Education policies in Europe and Spain: opportunities for modernization

Since the launching in 2010 of the European Higher Education Area (EHEA), it is generating major changes in the University System, both in Spain and in the countries of the Old Continent. This international policy is offering an outstanding opportunity for innovation across multiple dimensions: teaching&learning modalities, governance, and urban&architectural layout.

Given the profound shift that the Bologna Declaration entailed for the Spanish University System, in February 2003 the Spanish Ministry of Education, Culture and Sport produced a framework paper titled *La integración del Sistema Universitario Español en el Espacio Europeo de Enseñanza Superior* (*The integration of the Spanish*

*university system with the European Higher Education Area*). The framework document was intended as:

... a range of proposals designed to serve as a starting-point for the rethinking exercise that must take place in universities and education authorities, and to facilitate the necessary agreements on the fundamental issues surrounding the process of integration, which must guide any statutory measures that may be introduced (Ministerio de Educación, Cultura y Deporte, 2003).

Faced with the prospect of the EHEA, and beyond, Universities also have the onus of drawing up innovative modalities of teaching&learning in which the student plays the key role, rather than the lecturer: a true paradigm shift. The coherent consequence of this priority is that the way Knowledge is transmitted and shared has to be modified. Universities respond to international trends, and are repositories of the information and know-how related to those trends (Navarro & Gallardo, 2003). From this it also follows, innovative spaces have to be defined in parallel. The physical environment plays a key role in fostering innovative approaches to learning that go beyond the traditional masterly lecture, both in Universities and in Schools (Boyd & Hord, 1994). Thus, the first stage towards a profound change in teaching strategy and technique is to define new ways of teaching&learning.

The EHEA is indeed provoking a major change in the University System. According to the ideas expressed earlier, that change has necessarily to involve the spatial dimension of Universities, including Architecture, Nature and Art, as the physical body of Universities is critical for assuring the overall quality of the maturation of any student. Back to the Spanish scenario, since October 2008 the Ministry of Education has been putting into practice a Programme of modernization of Universities under the name *Estrategia Universidad 2015* (EU 2015), with the aim of stimulating Spanish universities' international competitiveness, while keeping faith with their membership of the wider European frame:

They are at the heart of the knowledge triangle (education, research, innovation) and at the interface between the European Higher Education Area and the European Research Area, so having the ability to lend shape to the European Knowledge Area (Ministerio de Educación, 2010).

By helping to achieve «structural and cultural changes in Spanish universities in the medium and long-term», the *Estrategia Universidad 2015* has become a veritable institutional roadmap for the Spanish university system, further reinforced by the stimuli offered by the *International Campus of Excellence (CEI)* Programme. In parallel, some European countries are developing national programs to foster that same kind of modernization: United Kingdom, France and Germany.

This innovative policy of modernization (the Program *International Campus of Excellence* started in Spain in 2009, coordinated initially by the Ministry of Education and the Ministry of Science and Innovation, including an extremely interest in the innovation of the physical implantations of Universities (Ministerio de Educación, 2010). The basic aim of the initiative was to promote transformations towards excellence and internationalization. Through a policy of aggregation amongst Institutions of Higher Education, the Program inspired new visions of campus that



can be used by Universities for innovative change. The adaptation of physical spaces to the teaching&learning modalities promoted by the EHEA requires a sound reflection about the nature of all those spaces.

As a consequence, both the European Higher Education Area and the Spanish Programme *International Campus of Excellence* constitute outstanding opportunities to develop a deep innovation on spatial models, through which Universities can achieve excellence in their physical layouts and their connections with the surrounding urban&social contexts.

#### 4. A global proposal for University innovation: the «Educational Campus»

European universities are adapting academically to the European Higher Education Area (EHEA), but they must still achieve a qualitative leap in the architecture of teaching premises and in their integration with their host city.

Higher Education in its built form has not shown in the last decades enough energy and quality, as reported in the case of Spain by acknowledged professors such as Antonio José Campesino (Campesino, 1995), or Josefina Gómez-Mendoza (Gómez-Mendoza *et al.*, 1987). As has been stated earlier in the present text, the quality of the student formation process is linked to availability of a qualified space. Thus, spaces to host learning functions have to be conceived both with rigor and certain passion.

Following the intention of suggesting a sound change to the situation of lack of energy mentioned before, and as a global response to the described need of providing formation activities with an adequate built frame, the concept of «Educational Campus» was enunciated by the author of the present text in 2005, together with the design of the new Campus of the University of Salamanca, in Spain. This concept was later published in the Reviews *Programme on Educational Building Exchange* by the OECD, *Centre for Effective Learning Environments Exchange* (Campos, 2010), as well as in the books *Spain-Campus of International Excellence* (Campos, 2010), and *Identity, Innovation and Environment at Spanish Universities* (Campos, 2011), both of them published by the Spanish Ministerio de Educación.

The underlining goal of the *Educational Campus* is the achievement of excellence. As a global principle, the *Educational Campus* tries to link integral formation, Architecture, Nature and Art. Its main mission is to understand works of Art, open spaces, Nature, landscape and indigenous vegetation as active cultural-learning components. The physical spaces designed to host Education & Research activities must try to go beyond acting as a mere built context. They must accomplish the goal of becoming «lessons» in themselves; amongst other values, their design should look for the transmission of virtues.

The definition of an *Educational Campus*, which was also published in detail in the Review *Aula* from the University of Salamanca (Campos, 2010) is predicated on the insight that a university's built space can and should go beyond its strictly material role as a container. When purposely designed, an *Educational Campus* acquires the ability to transmit values and project content in its own right, and is thus transformed from context to focus.

The education of the human being must take place in a spatial setting specifically designed for the purpose. The university may thus look to the future with an intention

to undertake fundamental changes in its architectural dimension. Founded on the intrinsic values of human relationships, architecture must provide active learning environments.

The development of the international university system over the past few decades displays a worrying absence of paradigms in this field. However, the present juncture, characterized by vigorous government policy and strategy (such as the *International Campus of Excellence* Programme promoted by Spain's Secretariat General of Universities, a division of the Ministry of Education), is emerging as a favorable framework for the proposal of new formulas. The stage is set for the introduction of innovative concepts, such as the *Educational Campus*: a university-spatial philosophy capable of structuring the transformation of the university's premises towards comprehensive excellence.

The vocational and intrinsically educational facet of a university's physical spaces is consistent with the calling of architecture in general. The capacity to instruct that a well-made architectural object may have springs from its ability to express its own needs to its surrounding city and community, and so bring change into alignment with the needs of the environment. These issues have been addressed by authors such as the Italians Franco Purini (Purini, 1980) and Galvano Della Volpe:

Ideas or values are expressed in architecture by means of a system of geometric, three-dimensional, visual signs. That is to say, architecture uses a language made up of measurements appropriate to the creation of visible order through the repetition of similar masses... (Della Volpe, 1964).

These approaches turn on the internalization of buildings and places annexed to teaching premises in the manner of three-dimensional textbooks, as referred to earlier, and as pointed out by Prakash Nair and Randall Fielding (Nair & Fielding, 2005); i.e., the campus as a student's first lecture.

Thus, the *Educational Campus* is proposed here as a conceptual and practical tool. As explained before, this model seeks to give concrete shape to a universal philosophy capable of driving forward a process of commitment to modernization at universities generally. To transform a set of university premises into an *Educational Campus*, reason must be combined with ambition. The success of any process of transformation towards excellence at a higher education institution can be structured into a tetrad of consecutive stages: conceptual foundations, planning, consensus and communication. If this itinerary is drawn with sufficient clarity, it may suffice to introduce the conceptual basis inherent in the concept of *Educational Campus*, the definition and implementation of which are one of the most important concerns of this paper, in regards to innovative spaces for Education.

To delineate the intervention philosophy that may guide the innovative transformation of university campuses towards excellence (and their suitable adaptation to the EHEA), there follows a definition of the concept of *Educational Campus*, a campus embodying the values contained in these ten principles:

#### 4.1. *First: Utopia and Integrated Planning*

Inspired by the energy of Utopian envisions, Universities must create a «sense of place» for the Campus users, towards the performance of «learning communities»

(Gabelnick, 1990). Feeling of identity with «place» and sense of «belonging», supports both study and research. Planning is of high importance to root a Campus in culture, as the case of the University-City of Madrid, and evolve in a coherent manner. Globally understood, planning means foresight, anticipating change and incorporating flexibility (Daigneau, 2005). It is an instrument indispensable for strengthening the feasibility and sustainability of a Campus, and to realize that the world of today for Higher Education is completely different from the past (Keller, 1983).

#### 4.2. *Second: Community of Learning and Research*

Stimulation of personal contact and the integration of multiple functions, thus encouraging the formation of a fully fledged community of learning and research where the human scale prevails throughout the various loci, fostering a «sense of belonging» in the university student. By carefully studied design, the physical setting must form bonds of empathy with the human being inhabiting it, such that urban planning and architecture act as a spur to engagement with study and research, with fellow students and mentors, and with the academic experience as a whole.

#### 4.3. *Third: Spatial Harmony*

Crystallization of a global aesthetic in the configuration of its architecture and urban planning, being destined as they are to form part of the host society's collective memory. The physical embodiments of institutions of learning must be something more than an «equipment» of built surfaces; it must concern itself with visual education by designs enacting coherent spatial orders in which as much heed is paid to built volumes as to open spaces. The campus, as the body and material reality of the university, is the lesson that first meets a student's gaze; it is a «three-dimensional textbook» in tectonic corporeal form.

#### 4.4. *Fourth: An Emotional, Intellectual and Spatial Embrace*

Embodiment of a spatial metaphor of the university's «emotional and intellectual embrace» by means of an ordering of the precinct deliberately concerned with its impact on and empathy with the community. The plan, volume, form and texture of the various architectural constituents of a campus must be directed toward fostering the psychological well-being of those inhabiting the centre of knowledge.

#### 4.5. *Fifth: Nature and Art*

Incorporation of Nature as a cultural asset, through integration in an overarching whole governed by a rule of «unity in diversity». The different elements – buildings and open spaces – should construct a physical habitat expressing the vocation of a campus as a cultural artefact endowed with curricular content of its own for study and research. To this there could be appended further outdoor and indoor zones for

exhibiting artwork, providing a supplementary educational experience. Together with these arguments, it must be remarked that Art can be introduced in the design of an *Educational Campus* as a criteria for excellence, as explained in the work *Campus de Excelencia Internacional-El Arte como criterio de excelencia* (Ministerio de Educación, 2010).

#### 4.6. *Sixth: Image and Accessibility*

A sensitive projection of the University towards its context implies paying attention to local culture and traditions. Mies Van der Rohe believed:

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

Consequently, the design of any architectural unit should project a suitable interpretation of the locality's heritage, as well as exemplary in its global accessibility.

#### 4.7. *Seventh: Adaptation to the Environment and Sustainability*

Adequacy to local environment, fostering sustainability values and techniques. A built environment must of necessarily factor in the conditions present at a particular site. If buildings are appropriately adapted to context, the advantages in terms of sustainability that result, are considerable. Architecture may foster renewable resource usage, through recycling processes, energy saving and its attendant efficiency. Recognizing this priority includes strategies across such areas waste management, sustainable transportation and bio-climatic Architecture, as illustrated with some Campus case studies by the author of the present paper, and published in the Review *Educación y Sostenibilidad*.

#### 4.8. *Eighth: Memory and Avant Garde*

The acknowledgement of past educational urban&architectural paradigms, harmonized with a commitment to *avant-garde* spatial ideas. This consciousness of the *architectural memory* finds outstanding types in History.

Besides, sharing knowledge with other cultures (building *bridges* between educational Architectures) can be an outstanding tool to plan innovative changes in the Universities of one particular country.

#### 4.9. *Ninth: University-City Relationship*

Generating close ties between University and City. Increasingly, Universities are being required to be innovative as much in laying down new pathways of transformation as in defining new procedures for increasing synergy with Society, whether through spatial solutions, facilitating a vibrant interaction of Campus with its social and economic surrounds, through raising scientific output, or stimulating

economic growth (Clark, 1998, 2005). In effect, no Higher Education Institution can nowadays be taken seriously if it remains in glorious isolation from the overall social context of its Nation.

#### 4.10. *Tenth: Innovative Teaching and Learning Modalities*

Design of places that inspire and foster innovative forms of teaching and learning as part of a holistic educational project, so that physical alternatives to the conventional lecture hall should leave behind obsolete, inert roles and become *intelligent* locations that stimulate the creation and transfer of knowledge and a salutary exchange of views in the teacher-student relationship.

As a first approach, hereby some teaching&learning modalities are mentioned, starting from the most traditional ones and including some innovative recent proposals:

1.-Conventional masterly lecture; 2.-Interactive lecture; 3.-Conventional lecture using visual aids; 4.-Lecturer-focused seminar/group tutorial; 5.-Idea-sharing session; 6.-Split-group idea-sharing seminar/partial tutorial; 7.-Multiple lecturer-focused seminar; 8.-Interactive session utilizing multiple visual aids; 9.-Soft-seat storytelling/floor-seating session; 10.-IT workstation-based study; 11.-Staged simulation of real activity; 12.-Individual study; 13.-Individual tutorial; 14.-Distance education; 15.-Student presentations; 16.-*Mise en scène* and other performing arts; 17.-On-site experience or guided tour; 18.-Individual reflective learning; 19.-Mobile technology-based learning; 20.-Social/casual learning; 21.-Work experience/internships; 22.-Community service.

The current European and Spanish University panorama is a sound invitation to innovate. The *Educational Campus* was conceived as a paradigm for transforming any Higher Education implantation. Overall, it fosters the idea that the built form of the University should become *a lesson in itself and by itself*. Thus, planning a University precinct entails a special commitment to its urban, cultural, economic and social environment. Universities have the obligation to be innovative in all their physical manifestations, including primarily Architecture, Nature and Art.

#### 5. **Transversal innovation: the four scales of modernization in University spaces**

The best way to dress a University with the needed quality is to conceive it under different scales, all of them coherent with the global idea of *Educational Campus*; as a consequence, transversal innovation will be generated in the design and construction of the places dedicated to host Higher Education activities.

The first scale is the relation «University-city», conceived under the concept of being *Educational*. This means that when a Campus is located within an urban framework, it must be exemplary in the way that the functional and spatial connections are displayed. Acting in such a way, the physical body of a University will be able to teach an important value: a correct interaction between both entities. Universities have always promoted innovation. A Campus implanted, gives rise to a centrifugal dynamism of social, cultural, economic and urban renewal well beyond

academe's groves. Changes in learning patterns are decisive if major progress towards quality culture is to be effective. Innovation, which the EHEA requires, has to be applied both in the ambit of the physical *places of knowledge* and the range and variability of modern learning modalities. This relation University-City is particularly critical within the European and Spanish scenario, as History shows the long tradition of connection between both entities, together with the fact that the EHEA Area fosters the University Third Mission.

The second scale is properly the «Campus»: a global unified precinct composed by built volumes and open spaces (where Nature and Art have to play a key role). Both complementary inert areas and corners can be activated as new «learning places», where education could be hosted. The Campus, therefore, will change its essence, leaving behind a mere role as a «context» and playing an innovative function as «theme» in itself.

The third scale is the building. Inside its membranes, the spaces dedicated to host educational activities must be conceived under the principle of becoming active sites for alternative of learning modalities. This, inside pieces of Architecture, plenty of innovative spaces can be activated as *formative places*, hosting, for instance, works of Art or cultural elements that enrich the capacity of the building to increase Knowledge.

The fourth and final scale is the classroom. Besides the typical magister lecture room, there are many other different types of «teaching cells» that can be designed and implemented, in order to enrich the variety of the teaching methodologies. It is needed to reflect upon the spatial configuration of alternative classrooms, and the way that furniture inside them can be arranged. The consequence will be the emergence of multiple learning spaces that are innovative, in contrast with the traditional ones.

## Conclusions

As expressed earlier, Education is a spatial, affective and collective act.

Consequently, Universities must pay a critical attention to the design of their physical bodies. Any Campus design must be developed under the consciousness of that statement; furthermore, the quality of the teaching&learning processes are narrowly connected to the quality of the spaces where they are hosted. As essential components of those spaces, three elements must be wisely combined: Architecture, Nature and Art. These three factors have the essential aim and capacity of modifying positively human behavior, fostering visual comfort and psychological wellbeing. As suggested by the German professor Rudolph Arnheim:

Buildings mould human behavior (Arnheim, 1977).

If designed under such principle of cultural aggregation between Architecture, Nature and Art, which corresponds to the global philosophy of the *Educational Campus* paradigm, Universities will be able to transform all their seats into really innovative environments that foster student motivation towards the acquisition of Knowledge, through the consolidation of communities of learning&research. Coming back to the described concept of *Educational Campus*, it must be underlined that it consists in a university-spatial strategy capable of structuring the transformation of the university's premises towards comprehensive excellence.

All authorities, managers and professionals involved in the planning of University seats must work both with ambition and sensitiveness towards the extremely relevant role that Architecture, Nature and Art can play in the performance of Education. This requirement of professional rigour is especially critical in the design of any *Space of Knowledge*, but particularly in Campus developments. Following the conviction that a qualified education must take place in an appropriate physical environment, the teaching&learning processes cannot be separated from direct human contact; modern forms of telecommunication must never seek to replace that close contact between people, which is the real stimulus for learning.

Designing urban&architectural spaces is a fascinating job, for two main reasons: first, those spaces can promote values such as aesthetics and sustainability; second, they will host human contact, which is an unavoidable value in which the University is founded.

Good Architecture fosters good Universities... and opposite. The capacity to instruct that a well-made campus may have springs from its ability to express its own needs to its surrounding city and community, and so bring change into alignment with the needs of the environment. Instructing capacity of Architecture, an idea involved in the concept of *Educational Campus*- As David Orr remarked in *The Nature of Design*:

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

The intrinsically formative facet of a University *Educational Campus* is coherent with the calling of Architecture in general, together with Nature and Art, taken as outstanding cultural values towards innovation and excellence.

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