



Infrastructure

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Beyond buildings: University Infrastructure as an academic life model

Many believe that academic institutions are neutral locations in which science and teaching simply occur.

However, this perspective ignores the degree to which Infrastructure is a paramount participant in shaping academic life. The physical and digital environments of a University are not simply passive contexts. They influence behaviour, participation, outcomes or even the values that are transmitted within the institution. Every single design decision – from routes for circulation to open areas; connectivity to the landscape – plays a relevant part in how well a Community performs, and, even further still, impacts on its whole constitution.

At this time of hybrid change, a Campus must be seen as an integrative whole with social, environmental and digital dimensions, all coming together to form one entity.

The Social dimension: space as the enabler of exchange between people

Academic communities do not evolve spontaneously. They rely on chances for casual conversation and unprompted interactions, frequently stimulated by spatial design.

Conventional Campus layouts often disentangle fields and faculties into separate buildings, thereby locking academia into silos. Although functional, this limits cross-disciplinary communication.

Modern institutions of higher learning are now realizing that cooperation takes place in shared spaces where students are able to move, find themselves and meet each other. The use of open learning

spaces, flexible commons, informal meeting zones, outdoor areas and sports grounds, acts as a social connector and fosters the sense of belonging, as Strange and Banning (2015) pointed out.

“If the Infrastructure fails to provide these informal spaces, the community remains fragmented, with students and faculty retreating to their quarters the moment a class ends.”

A Campus that is based on openness over enclosure is an indication that the institution works together to promote collaboration and shared knowledge, allowing for informal hallway conversations to develop into multidisciplinary research projects. In other words, a Community.

The Environmental Dimension: Campus as an Ethical Statement

Nowadays, it is impossible to neglect the environmental dimension of a Campus.

Promoting lower waste production while separating and preparing it for recycling is non-negotiable. The move towards ‘green buildings’, with reduced energy consumption, emissions and carbon footprint, is inevitable. Having electric vehicle charging stations, parking for bicycles or fostering ride sharing is mandatory.

A University’s Infrastructure is its most palpable and visible ethical statement.

The Campus is the perfect place to enrol a population of students, faculty and staff in environmental awareness programmes and to educate them, through daily habits, in the possibilities of a sustainable future. In this sense, the Campus itself becomes a kind of learning tool and should set the standard for what we want our Society to become, going beyond the classroom and the Campus walls.

From another perspective, vegetation, water, sunlight and outdoor spaces have a major impact on the well-being and cognitive performance of everyone. Campuses featuring green (vegetation) and blue (water) infrastructure are environments that are restorative and conducive to mental clarity, concentration and well-being, as Leal Filho (2017) argues. These attributes are not secondary to academic success; they are paramount to it and should be promoted.

The Digital Dimension: a Broader Campus

With the advent of digital technologies, the nature of a University’s

Infrastructure is now, more than ever, an open question. It's clear that the Campus is no longer confined to its physical limits.

Virtual learning tools, high-speed networks and intelligent systems have brought academics beyond classrooms and lecture halls. This digital layer offers freedom for teachers and students to be remotely connected, opening a new myriad of opportunities.

The challenge is that the digital infrastructure needs to be strategically combined with the physical one. If merely viewed as a technical tool, it runs the risk of undermining the "feeling of place" that many physical Campuses offer. The trick is to ensure that virtual tools cannot replace interaction.

Well-designed digital systems enhance hybrid forms of participation, help streamline the use of resources, provide connectivity, and enhance the relevance of in-person social experiences without replacing them.

Infrastructure as the steppingstone of academic excellence.

The case of UCP

When the Infrastructure of a Campus is aligned with the social, environmental, and digital vectors, it can adapt and grow, creating the sort of environment where experimentation, collaboration, and knowledge production thrive. Where a Community develops and thrives.

Carefully built Campuses can cultivate innovation, inclusion and a sense of belonging and resiliency, embodying the University's essence as a place of learning and as a precursor of civic duty.

At Universidade Católica Portuguesa we aspire to have Campuses that are physical manifestations of the aforementioned principles.

We know that a Campus is not a set of fixed assets but a dynamic ecosystem of buildings, green spaces and digital networks, constituting the foundation of academic life.

At UCP we are currently planning the extension of our largest Campus, located in Lisbon (UCP Palma), with those principles in mind. This new building aims to have a LEED Gold certification and meet NZEB (nearly zero energy building) requirements. It will have rainwater harvesting and reuse systems, photovoltaic energy production, green areas, restaurants and cafeterias, meeting and huddle rooms, digital classrooms and leisure areas, glass facades and ample spaces, amongst many other features.

Alongside, the existing Campus will be requalified. Current UCP Palma Campus grew organically since the 1960s, with additional buildings from the 70s, 80s and 90s, and some segregation between them.

The aim now is to provide the Campus with a central common ground, a 'green heart' that is easily accessible from every building, for all to enjoy and connect. This will encompass eliminating several hundred parking spaces and substituting those with green areas, filled with vegetation, shades and seating.

Throughout our other Campuses in Portugal, we are also working hard to improve the quality of our Infrastructure and overall conditions.

We know that these aren't easy processes as we have a significant legacy to take care of and improve, but we know this is the path and we are committed to reaching our destination.

References

Strange, C. C., & Banning, J. H. (2015). *Designing for Student Learning: Focus on Educational Confident Environments*. John Wiley & Sons.

Leal Filho, W. (2017). *Sustainable Development Research at Universities in the United Kingdom*. Springer International Publishing