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5.1 PARTIAL CONCLUSIONS

On the basis of the issues raised in each chapter, several general concepts that appear repeatedly in different sections of the paper may be defined.

Some of these pertain to the analysis of intermediate spaces specifically, although others go beyond this and are relevant to a general analysis of comfort in architecture.

5.1.1. On intermediate spaces

THEIR PRESENCE IN TIME, SPACE AND AREAS OF ARCHITECTURE

Intermediate spaces **have always existed** and they have been an inherent part of architecture from the most primitive examples of architecture up to the present day. They are found throughout the ages and in **very diverse civilisations**, such as China or Ancient Rome, which are far removed from each other in both physical and cultural terms. Similarly, they are found in diverse climates and in all **areas of architecture**, from the domestic sphere to the most representative architecture, where they invariably adapt to the requirements of each of these areas.

NOMINAL SPACES AND VERBAL SPACES

The presence of intermediate spaces at a variety of locations and in different periods of time has resulted in a very broad lexicon with which to refer to them, although having to associate the same image to a particular word may hamper communication. There are no clear linguistic correlations, due to the fact that the specific terminology for an architectural space may have originated in a variety of locations and languages.

With reference to the issue of whether spaces should be named after their form or their function, it may be concluded that, although the latter is usually the case, intermediate spaces do not have a specific function and therefore their nomenclature is based on a variety of criteria. For example, instead of being called *intermediate spaces*, they could be referred to as **nominal** or **noun spaces**, in contrast to **verbal spaces**.

PERIMETER-CENTRAL OPEN-CLOSED

The relative situation of the intermediate spaces within buildings does not necessarily define their properties. Even though they may be largely **perimeter** or **central**, the possibility of them occurring in succession obscures what initially seems to be a clear contrast. Nevertheless, this approximation does in some way serve to define them, although the appearance of glazing in architecture calls for greater precision and the additional consideration of whether they are **open** or **closed**. These four categories allow us to classify practically any intermediate space. They are all, in some measure, located at a perimeter, although some may penetrate the building and create an "exterior" inside it.



Our evaluation of the regulatory action of intermediate spaces in Chapter 3, which is summarised in the tables on pages 140 and 141, shows that it is **closed perimeter** spaces and **open central** spaces that have a more substantial impact on the environment.



SYMBOL IN ARCHITECTURE

As previously mentioned in our discussion of the lexicon of intermediate spaces, when we analyse the functions of intermediate spaces we observe that, in contrast to other architectural spaces whose existence is justified by the function that they fulfil, these spaces do not serve a specific function; nonetheless, they are almost always present in architecture.

The fact that architecture fulfils functions *other* than the merely functional or physiological (dimensional and environmental, matter and energy) is not usually considered. It is in these other areas that intermediate spaces offer greater possibilities than those that are strictly functional.

The **symbolic** desires that human beings must satisfy are also more significant than is usually thought, and it is in this respect that intermediate spaces may have a highly influential role to play, as a result of their ability to adapt and to become the showcase that users wish to display.

When relationships are established (family, friendship, business, power), there are intermediate spaces; in both private and public architecture and at all levels. This does not occur anywhere else in architecture to such a significant degree, because it is rare to find spaces that maintain their "essence" when their volume is multiplied by ten.

ENVIRONMENTAL REGULATORS

An analysis of the ways in which intermediate spaces function as environmental barriers and connectors demonstrates that, in enabling them to act simultaneously as a barrier to one phenomena and a connection to another, they act as "filters". This is not all they do, however, because by using the possibilities for manipulation and variation that they provide, they may also become effective **environmental regulators**. It may even be claimed that, as the possibilities for manipulation increase, the quality of the architectural space also increases, because the space fulfils a broader range of uses and environmental conditions.

Although the effectiveness of these spaces' environmental action depends on their position, they allow for a climatic and cultural transition, which is in the end what justifies their interior or perimeter location. The use of intermediate spaces has been, and still is, an efficient strategy for enhancing the environmental behaviour of architecture.

THE NEED FOR SPACE

Intermediate spaces need **space**, which cannot be substituted. They have the ability to create an impression of increased volume, which determines the mood or atmosphere of the architecture. The lack of distinct boundaries enlarges these spaces, even if only in a virtual manner. The fact that they "extend one's view" and let interior spaces "breathe" makes them seem larger than they would in the absence of these blurred extensions; after all, space is today one of the most highly valued commodities, a luxury that not everyone can afford.

5.1.2. On environmental comfort in architecture

NON-ARCHITECTURAL ANALYSES OF COMFORT

When considering the environmental comfort of architecture, the limitations of typical **partial** and **non-architectural** analyses, which generally result in guidelines and restrictions, become evident. These analyses are all too often taken literally and not for what they are: initial approximations under static conditions and in neutral spaces that are quite removed from the reality of architecture.

Studies of comfort originate in a variety of fields of knowledge and geographical locations (4.2.3. Studies of comfort), which may often explain their non-architectural approach. Interpreting the architectural environment in broader terms than the dimensional and environmental requirements is basic to studying comfort holistically, which is ultimately how we perceive architecture: as one experience and not as the sum of partial experiences.

ABSENCE OF INTUITIVE UNDERSTANDING OF THE ENVIRONMENT

Architects seldom display an **intuitive understanding** of environmental comfort issues in architecture, which cannot be justified by the difficulties that evaluating them involves. The validity of applying the *intuitive* concept to the acquisition of knowledge, which allows one to work with matrix rather than linear processes, has previously been highlighted. The fact that "*comfort*" is hard to describe, define and evaluate does not justify the fact that the issue is often overlooked or only partially studied.

ENVIRONMENTAL PARAMETERS: THE IMPORTANCE OF THE GRADIENT

The most conventional trend in the evaluation of environmental comfort is to consider only those "*environmental parameters*" that are easily evaluated numerically, and to ignore the rest. In this paper, "*specific parameters*" for each aspect are distinguished from those that are "*common*" to all, and the importance of the latter, particularly the **gradient**, is emphasised.

The fact that "*comfort factors*" are even harder to measure means that in practice they are disregarded, or unreliable statistics are used unimaginatively.

COMFORT FACTORS: THE IMPORTANCE OF THE SYMBOL

One of the most interesting aspects to be evaluated relates to users' comfort factors, specifically their "*activity*" and their "*desires*" or "*expectations*". These pragmatic terms refer to the concept of **symbols**, one of the three basic pillars of architecture.

On the basis of this, a new environmental analysis may be proposed, which starts with an analysis of users' comfort factors and then goes on to consider the environmental parameters.

5.2. GENERAL CONCLUSIONS

5.2.1. Comfort in intermediate architectural spaces

INCREASING COMFORT LEVELS

The study of environmental comfort clearly shows that environmental conditions should not be considered in isolation from the reality of architecture, because the comfort levels that are acceptable to users are higher than those that are recommended in order to fulfil the same functions in other spaces that are designed especially for these functions. The more specific the uses for which a space is designed, the more limited the users' choices become, which in turn restricts their levels of comfort.

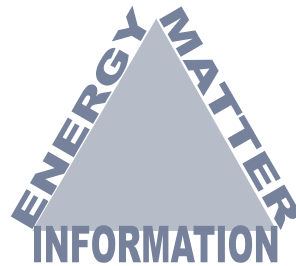
Intermediate spaces show that conditions of comfort largely depend on users. Therefore, these conditions should be evaluated in the light of this fact and spaces should be designed in a more flexible manner, so as to favour positive aspects, which would in turn increase tolerance levels. To attribute solely a negative quality or a sense of limitation to comfort, as is presently the case for all environmental approaches, is absurd. When evaluating the quality of architecture, the positive action of stimuli may be more important than simply stating its deficiencies.

FOR THE REGULATORY CAPACITY

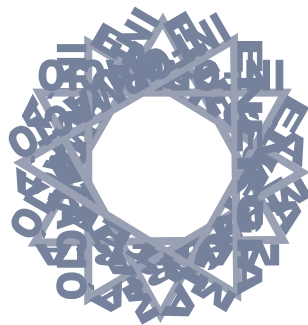
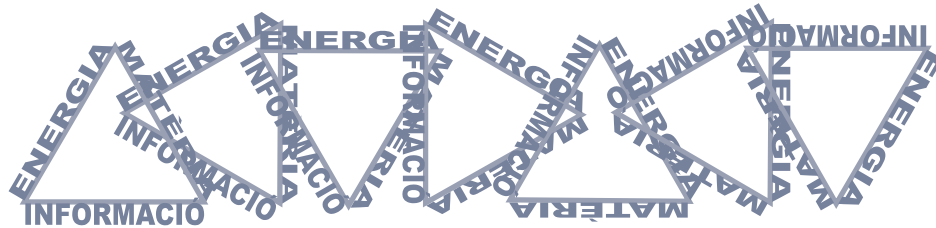
It is not that the "regulatory" capacity of intermediate spaces modifies the environmental conditions in such a way that these always stay within established limits, but that users' desires (symbols) simultaneously modify and broaden these limits.

AND THE INCORPORATION OF SYMBOLS

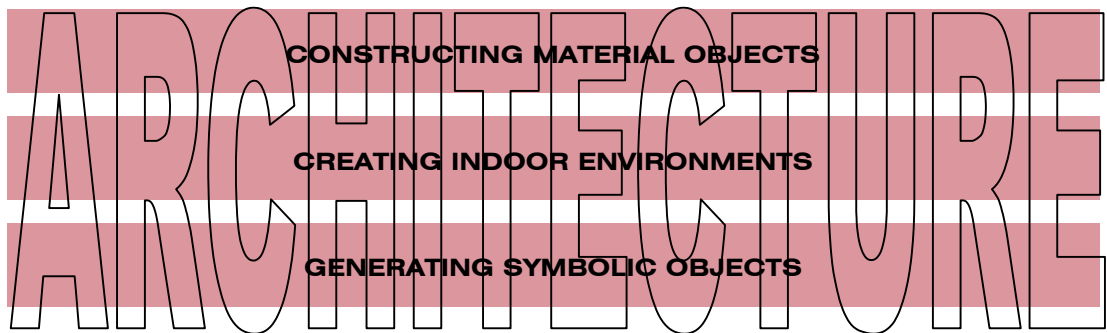
All of these aspects corroborate our initial idea that architecture is not simply built-up space (MATTER), nor is it just the indoor environment (ENERGY) or the formalisation of symbols (INFORMATION); it is all these aspects in conjunction. To achieve certain levels of comfort, human beings have, from their origins, sought to satisfy these vital needs.



Intermediate spaces, due to the fact that their material and energetic conditions may vary greatly, raise awareness of the importance of the third pillar of comfort in architecture: *information*.



This leads us to reflect upon the **teaching of architecture** and of the three areas that should be basis of architects' theoretical knowledge. These three areas are the **material creation of objects** (materials, technology, structures, etc.), the **creation of environments** (natural media, artificial media for environmental control, etc.), and the **creation of symbolic objects** (history, theory, architectural composition, etc.).



In the study of architecture, a clear and balanced correlation between these three areas of knowledge must be established.

5.3. ADDITIONAL CONSIDERATIONS (Prospects)

As I have necessarily targeted a particular topic in this paper, a number of extensive areas have not been addressed. The following paragraphs contain brief discussions of these areas.

INTERMEDIATE SPACES ON AN URBAN SCALE

The first of these areas, which is as broad as it is fascinating, addresses **intermediate spaces on an urban scale**. These blurred architectural areas are also present in urban environments and I suspect that it is they that give cities their character and that differentiate them from other cities. Cities also have their own intermediate spaces, between what are usually known as *public* and *private spaces*, although in many cases this contrast is also hard to define. An environmental analysis would probably not be as specific—although in many climates I think it might—and a more urban approach should consequently be taken, on a different scale altogether. However, I feel that, at present, when important issues pertaining to the ways in which the urban fabric should be developed in the future are being debated, an analysis of the role of urban intermediate spaces in cities may be able to offer relevant points of view that would contrast with traditional opinions on the subject.

THE SUCCESSION OF INTERMEDIATE SPACES

Another area that I would have liked to study is the **succession of intermediate spaces**, i.e. possible, improbable and impossible spaces. In this paper, we have focused on intermediate spaces between outdoor and indoor environments; the reality, however, is much more complex. In many cases, there are different intermediate spaces between the exterior and interior, and it would be interesting to ascertain which composition laws (material, energetic and informative) they follow; whether the possibilities of succession increase as the influence of intermediate spaces decreases or there is a critical influence that limits these possibilities; whether there a fixed number of combinations of sequences such as porch–hall–patio, patio–peristyle–atrium, hall–atrium–balcony and the effect of these combinations; and so on.

Evidently, every intermediate space may be analysed in greater depth. Although historically it is the patio that has undergone the most extensive study and analysis, much work is currently being carried out on glass atriums, widely present in contemporary architecture, which might become an interesting area of research.

THE SKIN OF BUILDINGS AS AN EXCHANGER

Another aspect that I feel requires in-depth research is the **skin of buildings**, because of the significant role it plays in the exchange of flows. Current technological development based on the curtain wall is allowing the design and construction of double and triple skins on buildings, which are every day increasing in size. We might say these skins have become new perimeter intermediate spaces, which confirms the claim, stated previously in the conclusions, that intermediate spaces require “space”.

INTEGRATED COMFORT

Finally, **integrated comfort** is a very ambitious field. It involves the search for formulas for comfort that are comprehensive, simple to apply and easily correlated to the design process.

To satisfy this aim, a new awareness of human behaviour and human reactions to environmental initiatives are necessary. Discriminating research on users' perception of comfort in intermediate spaces is required, in order to establish the degree to which predicted comfort levels increase in comparison to more functional spaces. This research should be carried out by specialists in different fields and in various environmental and cultural contexts and should focus on evaluating all these factors, which are currently undervalued and difficult to measure in number. This interdisciplinary work may provide tools suited to the future implementation, in architecture, of a new way of valuing space and of making it more profitable, to satisfy increasing demands for simpler and more efficient solutions.¹

¹ What may seem simple is **not** necessarily unsophisticated. In most cases, the opposite is true. The harmonious form of a piece of pottery by Llorens Artigues, the impeccable balance of a photograph by Català Roca or the precise lines of Picasso's plume are neither easy nor casual, let alone simple.

Underlying this work is a basic idea: the quest for comfort in all possible spheres. Above all, however, a **positive** conception of comfort, as pleasure, emotion, motivation or entertainment, is defended, in contrast to the standard definition, “absence of discomfort”, and an attempt is made to highlight the fact that positive aspects lead to actions.

If this attitude were applied to the field of architecture, it would result in architecture that, in addition to fulfilling functional conditions (such as protecting against...), attempts to respond to aspects of comfort—in the broadest sense—and utilises these positive resources as the initiators of architectural projects.

In this paper, intermediate spaces—persistent, constant and apparently USELESS—have an important lesson to teach us: **THE USEFULNESS OF USELESS SPACES.**