

Trans-disciplinary Inquiry Through  
Convergence of Architecture, Design,  
Art, and Human Science

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# Introduction

- The questions posed for inquiry and demands on knowing to address contemporary problems through research make it increasingly difficult with each passing decade for us to expect answers that can come from a single discipline.

# Introduction

- Water pollution involves more than simply consulting a chemist.
- Species extinction is not the sole interest of biologists.
- Genetic mutation attracts researchers in fields adjacent to genetics.
- Poverty has gone beyond the purview of the economist and sociologist.

# Introduction

- There are multiple factors relevant to a phenomenon of interest. In each case, a set of disciplines and fields of study emerges that is best positioned to inform us about each relevant factor.
- Hence, reason and motivation for inter-, multi-, cross-, and trans-disciplinary research.



# Introduction

- The purpose of this presentation is to discuss that architecture, design, art, and human science represent an important convergence illustrative of trans-disciplinarity.
- They perpetuate a long-standing association expressed in our built environments.
- The convergence offers a plentitude of foci for trans-disciplinary research.

# Trans-disciplinarity

- The nature of trans-disciplinarity and trans-disciplinary research is systemic in its orientation and use of multiple perspectives.
- The focus is on the relationships human beings have with each other, other beings, and the environment.

# Trans-disciplinary Inquiry

- In trans-disciplinary inquiry, a social dynamism energizes inquiry, where the collaborators bring to the process their disciplinary expertise to bear on the research focus.

# Trans-disciplinary Inquiry

- The process is team oriented and collaborative with the common goal of addressing the research question from a multitude of perspectives.
- For example, the architect, designer, artist, and human scientist bring to the inquiry four important perspectives that collectively can provide a more comprehensive and informed answer to the research question than any one alone.



# Trans-disciplinary Inquiry

- Two particularly prominent aspects or dimensions complexify trans-disciplinary inquiry.
- The first concerns the number of inquirers that constitute the team of researchers.
- The second is the number of disciplines and fields of study pertinent to the inquiry.

# Research Activity System

- Human Activity System (HAS) is a construct of convenience and meaningful to conceptualize a group of persons interacting for an agreed upon purpose, common need, or shared pursuit.

# Research Activity System

- The HAS devoted to trans-disciplinary inquiry may be termed a Research Activity System (RAS).

# Research Activity System

- In my current pursuits, applications of RAS can be found under the acronym ADAHS, meaning Architecture, Design, Art, and Human Science.
- I have been developing this basis for trans-disciplinary studies at my university.
- Most recently, ADAHS was adopted as one focus for completing the Human Science graduate programs at my university.



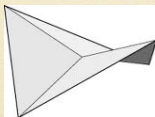
# ADAHS

- The focus is developing in close collaboration with our colleagues in the Department of Building and Environment Science and Technology (BEST) at the Politecnico di Milano, Italy.
- Salient in our collaboration is the experience of space traversing the built environment organizing a place, conveyed via a range of research questions.
- We came to a common understanding that this general research focus was one worthy of trans-disciplinary studies within and between our education institutions.

# ADAHS

As a general research focus for trans-disciplinary studies, ADAHS converges and integrates over the course of graduate study four main constructs:

Architecture



Design

Human Science

Art

# Architecture

- Architecture is a discipline and profession that concerns transecting and organizing the spaces human beings are to inhabit.
- Its practices result in spatial contexts designed to control, steer, and induce a wide range of behaviors and experiences.

# Architecture

- The architect has been placed by definition of the discipline at the very center of designing our built environment.
- And for this centrality, it has seemed to us that this discipline is primary for trans-disciplinary studies of space and place.



# Design

- Design has several meanings, all of which can be applied to trans-disciplinary research.
- Particular organizations of space can readily become templates of design. Prominent lines and curves, volumes and shapes, solids and empty hollows are important design features for transecting, sculpting, and organizing space.

# Design

- Another kind of design is the configuration of all resources and persons that need to be coordinated to progress through all phases of any specific trans-disciplinary inquiry.
- In such uses, the construct is termed the research design of the inquiry.

# Art

- Art enhances the human experience of space and place.
- Human beings have a compelling propensity to add and alter something in an artistic fashion to make the place a home.

# Art

- Humans are the only living beings to our knowledge that engage in art making with intentionality and purpose generative of adding meaning to and evoking appreciation of their world.
- Art has become an inherent part of space and place as we experience them.



# Art and Science

- The interplay of art and science is advantageous in trans-disciplinary studies.
- Where art reminds us of the innovative, creative, and intuitive sides of conducting inquiry, science reminds us of the training, decision rules, and proven step-by-step methodical procedures that ensure discipline in inquiry.
- But it does not follow that one lacks in or should be kept separate from the other.

# ADAHS

- ADAHS is inclusive of all disciplines and fields of study pertinent to human beings and their environs.
- Since the middle of the twentieth century, human scientists converge from the social and behavioral sciences as well as the arts and humanities.
- From the disciplines of the human sciences, there are research methodologies being advanced for us to consider whether they are germane to a particular trans-disciplinary research study.

# ADAHS

- To seek knowledge with maximal generalizability is to foster trans-disciplinary knowledge.
- Trans-disciplinary research is best communicated by the ideas of confluence and integration.

# ADAHS

- The thrust of ADAHS is programmatic research.
- ADAHS provides an arena for students, faculty, and colleagues to conduct many studies that move toward the goals of the Human Science programs of the author's university, as well as prompt parallel developments with my colleagues and collaborators in BEST, Milan, Italy.



# ADAHS

We posed a set of general questions that help to communicate parameters and potential directions for trans-disciplinary studies and research, as follows:

- What contributions can the human sciences make to architectural design and decision-making for a better understanding of the ways people perceive their built environment?
- What advances can be made to improve methods of building processes, such as Post-Occupancy Evaluation and Building Performance Evaluation, and related methodologies and metrics, in assessing the “success” of architectural projects and in improving the design decision- making process?
- With keener attention to the heritage values of historical urban settlements and landscape, what contributions can inhabitants’ perceptions of their built environment and their values make that can be brought to bear on architectural design and decision making?
- What can be done to improve the efficacious use of systemic approaches to architectural design and decision making?
- What social and psychological effects of architecture on our daily life are the critical ones to know and take into account in making built environments for healthier, “greener,” and ecologically more viable domiciles adjacent to as well as within larger communities?
- What qualities of and innovations for organising space foster transformative effects for human and ecological betterment without adverse secondary effects of environmental degradation?
- From the architects, builders and designers to the residents, what are the qualities and innovations that produce the landscape-dwelling interactions that produce and sustain their best practices for healthier living?

# ADAHS

## Main Research Interests of Principals Became Aims of the Project

- The systemic nature of architecture as a complex means to produce the built environment.
- The concept of emergence to describe and analyze architecture and the built environment, as simpler higher-level order processes resulting from the conscious and unconscious interactions of many agents in the more complex lower-level order processes, all belonging to the larger system represented by society as a whole.
- The systemic contributions of different sciences to architectural design and decision making for a better understanding of the ways people perceive their built environment and social systems acquire emergent properties.
- The importance of sound methods, such as Post-Occupancy Evaluation and Building Performance Evaluation, in assessing the built environment and in evaluating the success of architectural projects at different scales according to the users' perceptions, thus offering an important feedback methodology for the building activities as well as architectural practice.

Table 2. Main subject interests and aims of the Project

# ADAHS

## Research Foci of Special Importance

- The systemic approach to architectural design and decision-making.
- The contributions of the human sciences to architectural design and decision making for a better understanding of the ways people perceive their built environment.
- The contributions of the science of complexity, its methods and models to the theoretical base of principles establishing the Project.
- The social and psychological effects of architecture on our daily life.
- The inhabitants' perceptions of the built environment and their values, with keener attention to the heritage and landscape values of historical settlements.

Table 3. Foci of special importance necessitating trans-disciplinary inquiry.



# Conclusion

- Despite what might appear as grand statements of promise and potential, our intentions are very modest in our convergence by means of ADAHS in the Human Science graduate programs and the collaborative Project between our two universities.
- It is our desire that these pursuits may contribute new graduates and advance knowledge domains for the larger cause of more humanistic and human science oriented built environments of the future.
- We invite your interest.



The End