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THE CREATIVE SIDE OF THE REFLECTIVE PLANNER

PLANNING, ONTOLOGY, UNCERTAINTY, CREATIVITY

G.Rabino ^a, R.Stufano ^b

^a Dipartimento di Architettura e Studi Urbani, Politecnico di Milano, IT
e-mail: giovanni.rabino@polimi.it
URL: <http://www.polimi.it/>

^b Dipartimento di Ingegneria Civile, Ambientale, del Territorio, Edile e di Chimica, Politecnico di Bari



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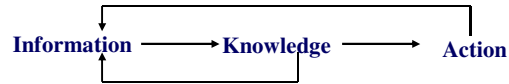


SUMMARY

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Planning: a complex path from problem setting to problem solving



Several cruces in this path: knowledge building; solution finding; evaluation; decision making; putting into practice; communication; argumentation; empowerment

A very short **history of urban planning:**

- + -> 50s: urban planning as a large scale architecture
- + 60s: cities as systems and planning as a process
- + 70s: planning as a political issue
- + 80s: from planning to «governance» (decision making)
- + 90s: the argumentative turn (MAS planning; self-organization)
- + today: a revival of a new rational –new comprehensive planning (smart cities, big urban data ...)?



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We want to point out rationality mechanisms, reflection and creativity of the practitioner/planner analyzing the innovation made by Schön

In the sixties the practitioner is conceived as an expert, as an incarnation of the knowledge of his own field

In the subsequent years the figure of the practitioner was affected by a crisis phase was clear that a practitioner moves himself and his decision in a limited rationality situation



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THE SCHÖN'S FINDINGS: A SHORT RECALL

The Schön's thought plays a fundamental role in a context characterized by the need of a new awareness of practitioner knowledge

So the practitioner is no more the infallible expert, but a reflexive practitioner, someone that knows that has to think deeply about what is doing, about his choices and their consequences

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The reflexive practitioner thanks to his experience and his memories of practice refers to some elements of the repertoire that is familiar to him, in order to know how to behave, avoiding problems already faced in the past in similar situations

The most important question in action is: What if?

The practitioner must consider not only the current choice but also the tree of subsequent situations to which it leads

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Planners today do not follow the model of centralized planning, but they carry out their practice in relation to a growing variety of stakeholders and systems

Each individual develops a particular way of structuring his role, which is connected to the problems setting, the type of strategies he adopts and the interpersonal theories of action he develops

This degree of freedom is a clear form of creativity

It is also clear to us that the reflection in the course of the action of a professional is a creative process too

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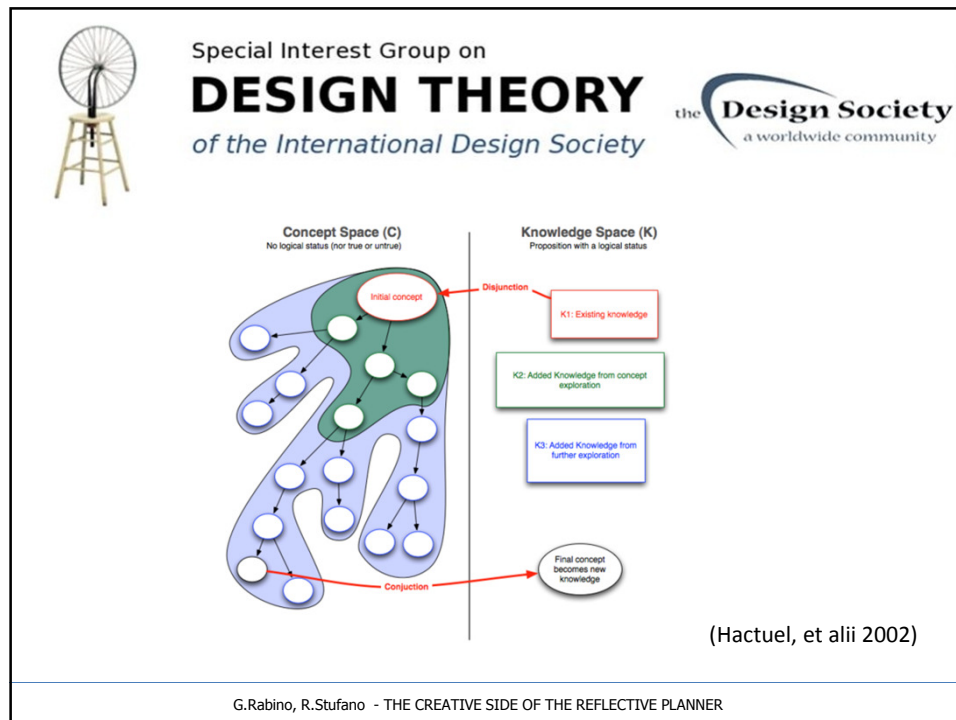
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Schön does not deal with the issue of creativity in an explicit way, but creativity does emerge, tacitly, almost unawares

The biggest difficulty in analyzing creative processes is about their non-transparency: we can't read inside ourselves while our head is working

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Creative design is not only the production of 'novel and valuable ideas', but also using odd ideas for the generation of valuable new knowledge

Analyzing a creative design action we recognize three different parallel processes

1. combination
2. analogy
3. mutation

the operations of creative design can be captured with a high level of generality, (Gero, 2006)

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So we have on one hand the theory of creativity, and in other hand the stress of the importance of reflection-in-action (Schon, 1983)

So the importance of the creativity in the planning and design processes, and the importance of the self consciousness about creativity

The practitioners must also be aware to know as to reach a conscious knowledge

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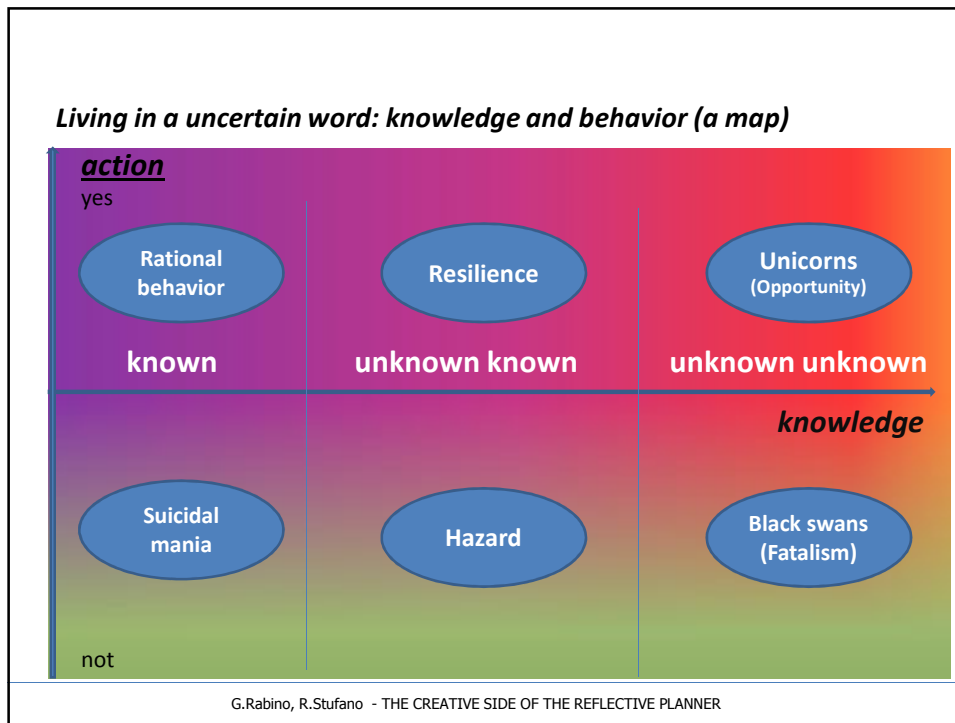
CREATIVITY AND THE STRUCTURE OF THE KNOWLEDGE/STRUCTURE OF THE UNKNOWN

So the reflection-in-action introduce us to dealing with consciousness (and as a second level of deepening the consciousness of consciousness , and so on...)

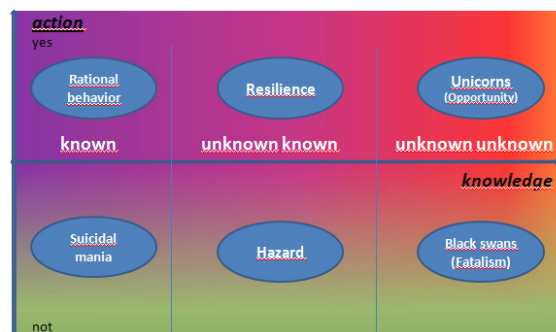
Dealing with consciousness opens:

- spaces of uncertainty and ignorance (on the knowledge side)
- spaces to willingness to action (in the action side)

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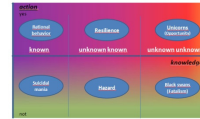


In the figure we can observe how behaviors may be reinterpreted according to different creativity attitude (using the Le Masson's terminology the expansions of the knowledge proceed according to different mechanisms)



This scheme can introduce both to ontologies and to creativity
 In the lower part we have non creative behaviors
 In higher part we have different kind of creative behaviors

In the creativity behavior we recognize:



1. Filling the gaps in knowledge:
novelties driven by the conscious knowledge (ordinary design advancements)
tools: variations, optimization, etc.
2. Expansion by proximity:
exploring the unknown (i.e. the unknown known) near to the conscious knowledge (for an example you see the theory of the relativity)
tools: abstraction, blending theories, C-K theory, etc.
3. Leap frog expansion:
exploring the deep unknown (the unknown unknown) (for example the penicillin, the velcro, the dynamite)
tools: serendipity, lucky errors, etc. (largely unexplored fields)

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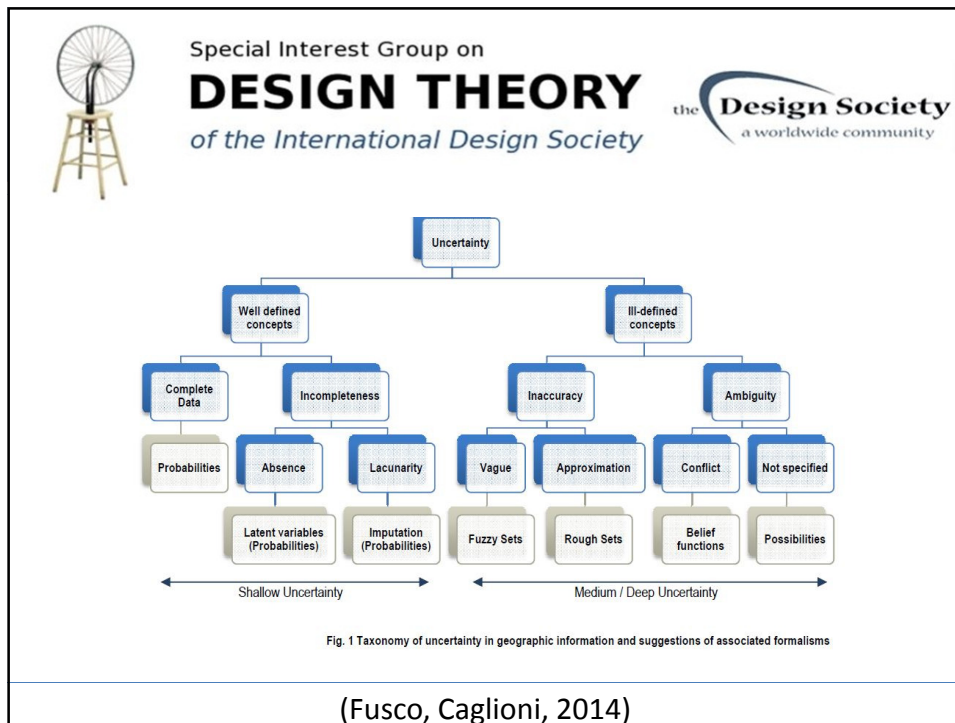
CREATIVITY AND ONTOLOGY: THE LINK

Each one of the kind of creativity we described is related to a different kind of ontological (at philosophical level) view of the world

Each one of these ontological view can be transformed in a formal ontology specifying the underline axioms and logic

Then the more or less deep creativity is associated to various different ontologies, ranging from crisp ontology (e.g. DOLCE) to probabilistic, fuzzy, rough, possibilistic, (etc...) ones (Fusco, 2014)

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Uncertainty

Well defined concepts

Ill-defined concepts

Complete Data

Incompleteness

Inaccuracy

Ambiguity

Probabilities

Absence

Lacunarity

Vague

Approximation

Conflict

Not specified

Latent variables (Probabilities)

Imputation (Probabilities)

Fuzzy Sets

Rough Sets

Belief functions

Possibilities


Shallow Uncertainty

Medium / Deep Uncertainty

Fig. 1 Taxonomy of uncertainty in geographic information and suggestions of associated formalisms

This is an attempt to classify ontologies of uncertainties (about the unknown), for an example when you are dealing with ill defined concepts because of ambiguity and conflicts among concepts the most appropriate ontology is the so called a belief function ontology

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ONTOLOGY OF PHYSICAL NATURAL THINGS (SCIENTIFIC ONTOLOGIES)
 Attributes related to initial causes >
 Crisp first and order logic ontology (eg DOLCE)

Vs

ONTOLOGY OF ARTEFACTS (DESIGN ONTOLOGIES)
 (Artefacts: Physical, social, ideal objects)
 Attributes related to initial and final causes >
 Possibility of non crisp, non standard logic ontologies
 (eg meta-possibilistic ontologies)

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AN EXAMPLE: in urban planning domain

ACCESSIBILITY as a scientific object:
 $\text{Max } U(\text{accessibility}) = \text{Max } U(\text{benefits} - \text{costs of movement})$

ACCESSIBILITY as a cultural/design object:
 $\text{Max } U(\text{a-spatial benefits})$
 $\text{Min } U(\text{spatial costs of movement})$

First ontology allows to explain (only) the transition from compact city to urban sprawl
 Second ontology allows to explain the variety of contemporary urban settlements (sprawl, megalopolis,)



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URBAN DESIGN (design in a public domain): a research agenda.

Three levels of problems:

1. epistemology: to dig deeper into the urban governance, not as a scientific problem, but as a design problem (of a physical, social and ideal object)
2. theory: to apply “complex system” approach (urban governance as a wicked process)
3. methodology: to design in a non-cooperative environment (merging design theory with conflict theory)



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CONCLUSION: IMPLICATIONS FOR PLANNING

- Improve the Schon findings making explicit (**conscious**) the creative side of the planner
- Be aware of the creative possibility offered by the unknown
- Choose the appropriate ontology (more or less crisp) according to the problem you are facing (planning problems usually are wicked problems where the problem setting - the suitable approach- is the crucial step in problem solving)
- Use the tools offered by creativity theories

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Thank you
for your kind attention
