Communicating Spatial Formations

Exploring the Potential of Hybrid Tools in Architecture

IDEAS-BE Grad Seminar Fall Series 2019 - Firdous Nizar

Overview

PART I

INTRODUCTION

Effective Communication Tools
in Architecture

PART II

WORKSHOP

Collaborative Dimensions Survey

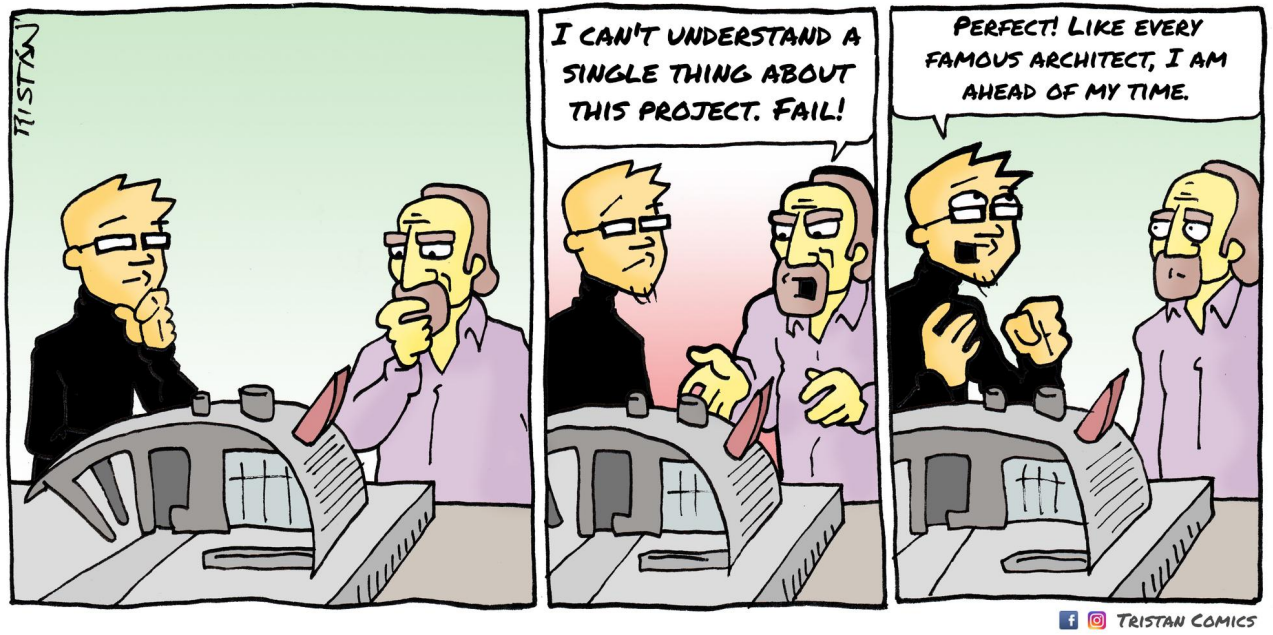
DISCUSSION

INTRODUCTION

Effective Communication Tools in Architecture

My research is on...

- Ongoing communication gap in sharing ideas in architectural projects between clients, architects, engineers, designers, policymakers, occupants, and so on.



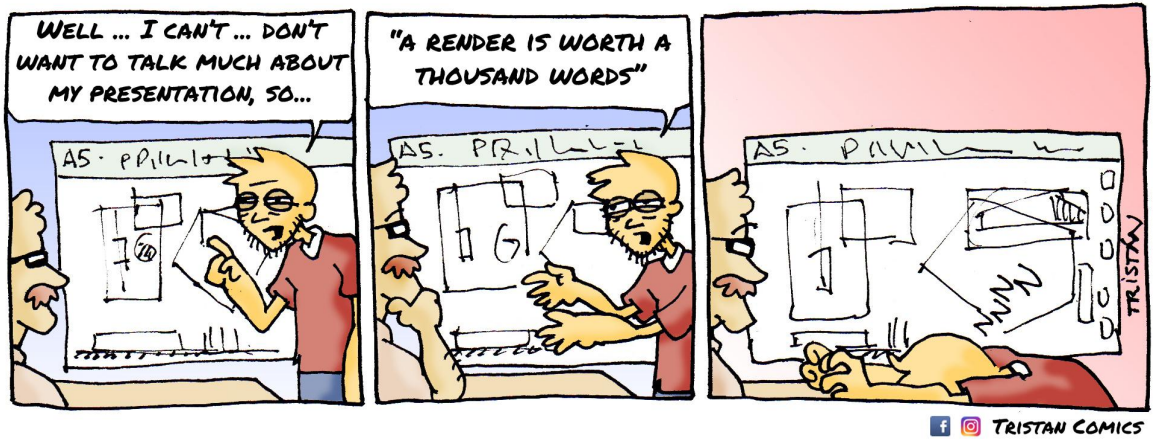
My research is on...

Hypothesis: This gap can be bridged by **designing a more effective communication tool** in architecture by combining analog(traditional) with digital(new & evolving) architecture tools, encouraging better design collaboration.

> ***What are the challenges of communicating spatial ideas in architecture during collaborative ideation processes?***

Contribution

> ***Reimagining the design process to better facilitate bridging the gap in communicating spatial formations in architecture.***

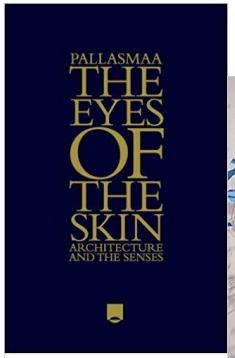


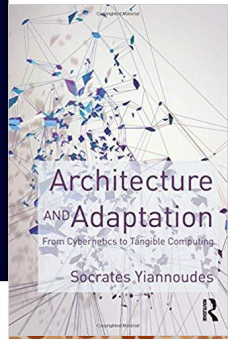
Context

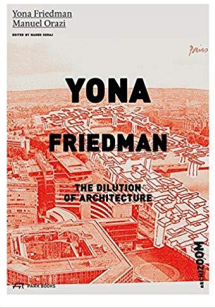
Design Process
in Architecture

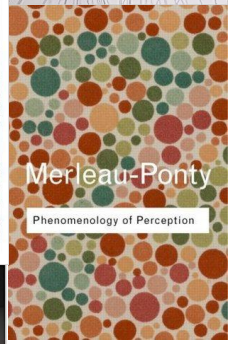
Phase 0:
COLLABORATIVE IDEATION

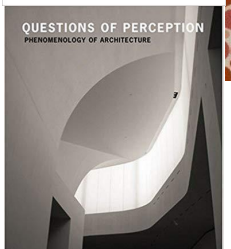
Framework

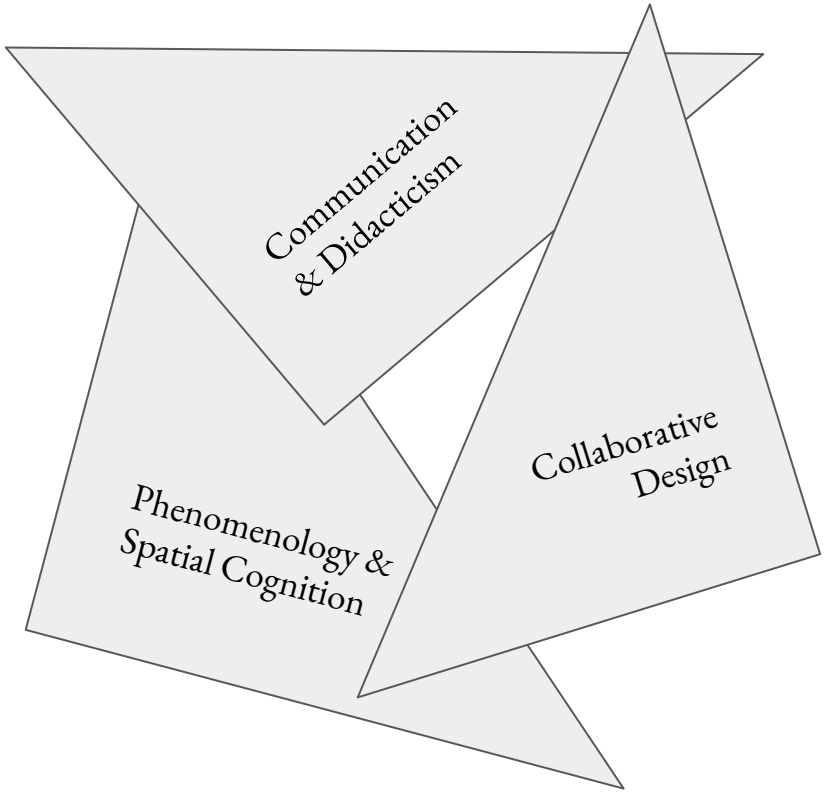

PALLASMAA
THE EYES OF THE SKIN
ARCHITECTURE AND THE SENSES

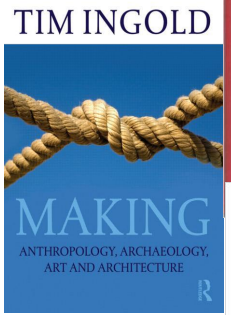

Architecture AND Adaptation
From Cybernetics to Tangible Computing
Socrates Yiannoudes

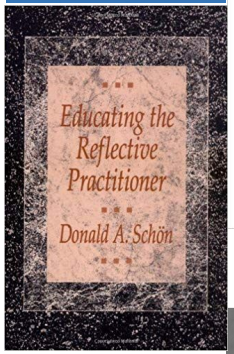

Yona Friedman
Manuel Orazi
YONA FRIEDMAN
THE DILUTION OF ARCHITECTURE

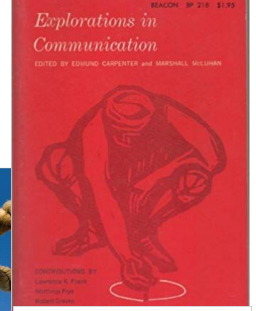

Merleau-Ponty
Phenomenology of Perception

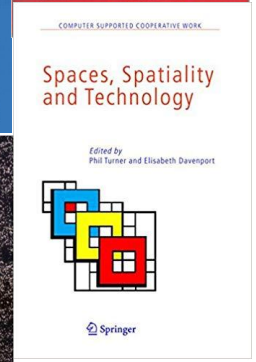

QUESTIONS OF PERCEPTION
PHENOMENOLOGY OF ARCHITECTURE

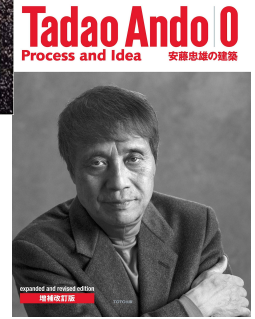

Communication & Didacticism
Collaborative Design
Phenomenology & Spatial Cognition


TIM INGOLD
MAKING
ANTHROPOLOGY, ARCHAEOLOGY, ART AND ARCHITECTURE


Educating the Reflective Practitioner
Donald A. Schön


Explorations in Communication


COMPUTER SUPPORTED COOPERATIVE WORK
Spaces, Spatiality and Technology
Edited by
Phil Turner and Elisabeth Davenport
Springer


Tadao Ando 0
Process and Idea
安藤忠雄の建築

Types of Ideation Tools

Verbal

Non-Verbal

Analog

Digital

Formal

Informal

Technical

Social

Ideation Senses

Visual

Vestibular

Auditory

Gustatory

Olfactory

Tactile

Proprioceptive

Types of Ideation Tools

Verbal

Non-Verbal

Analog

Digital

Formal

Informal

Technical

Social

Ideation Senses

Visual

Vestibular

Auditory

Gustatory

Olfactory

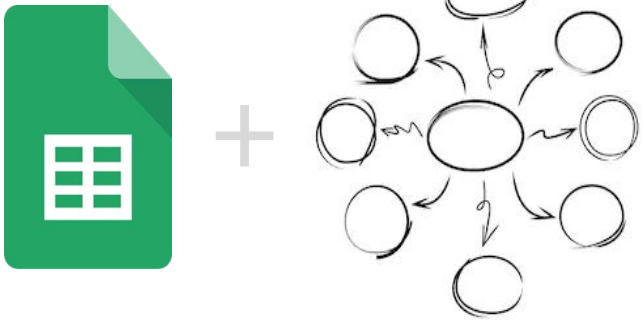
Tactile

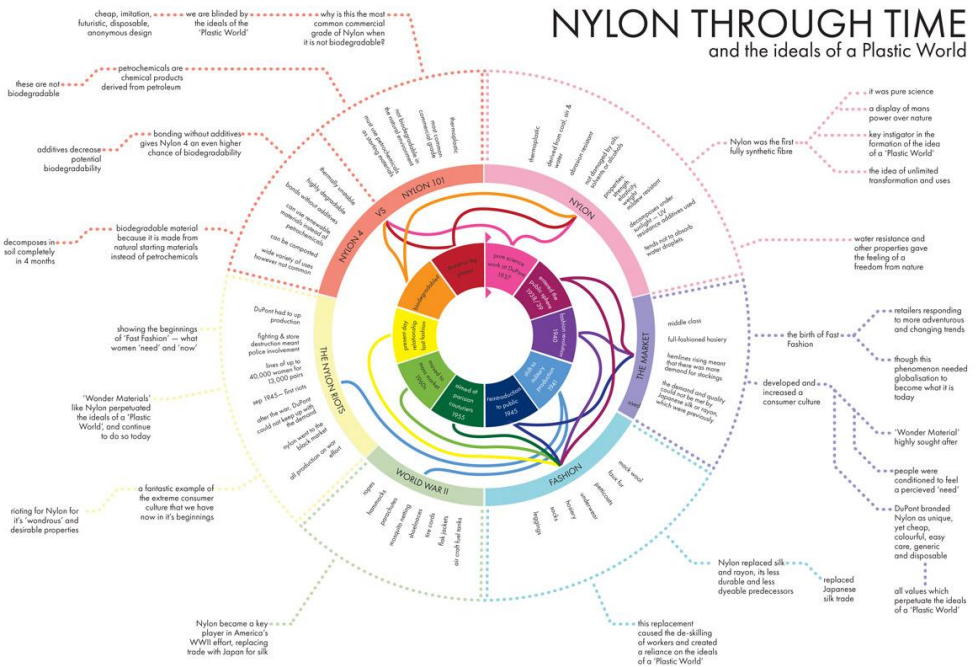
Proprioceptive

Tools Studied

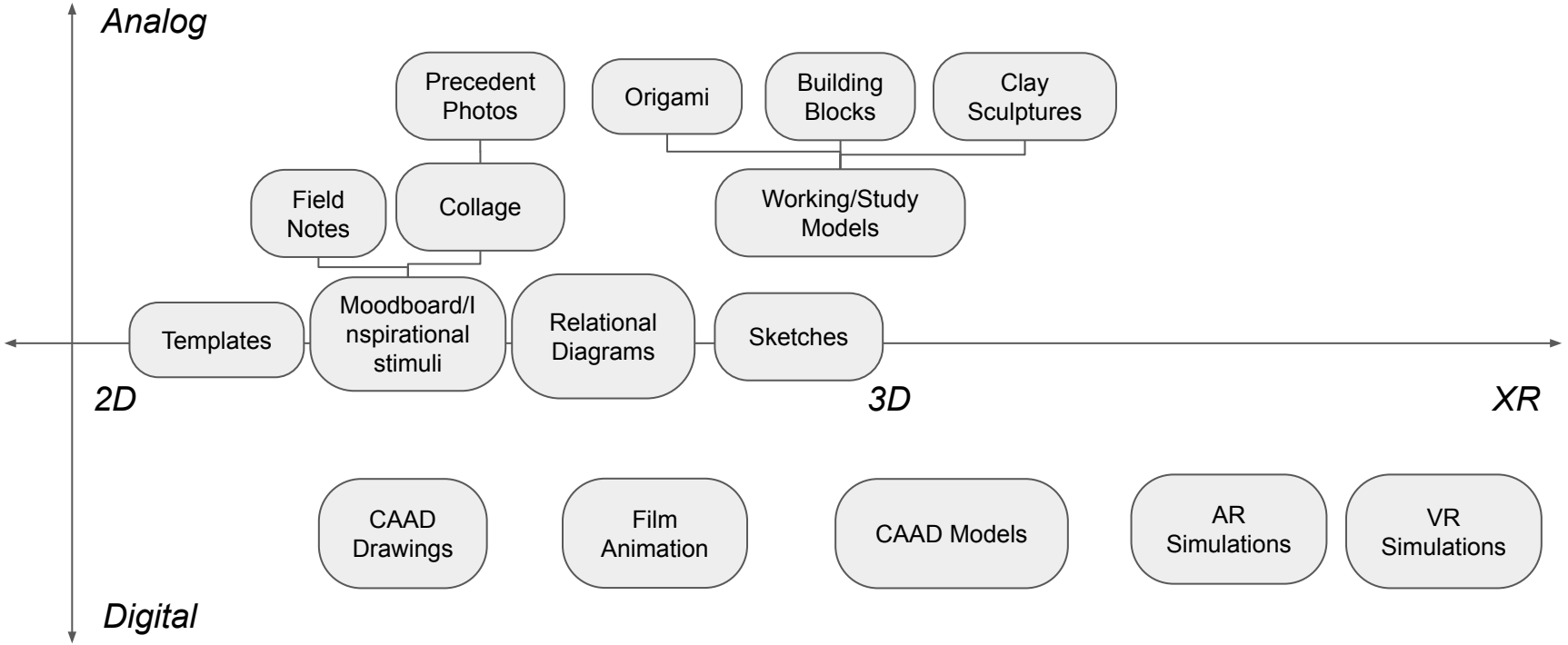
- **Analog**/Traditional - Sketches, maquettes, concept description, collage, moodboards, plans, sections, elevations, live presentation...

- **Digital**/Modern - detailed axonometric, 3D model, statistic diagrams, rendered perspective, presentation panel, film animation, AR, VR,...

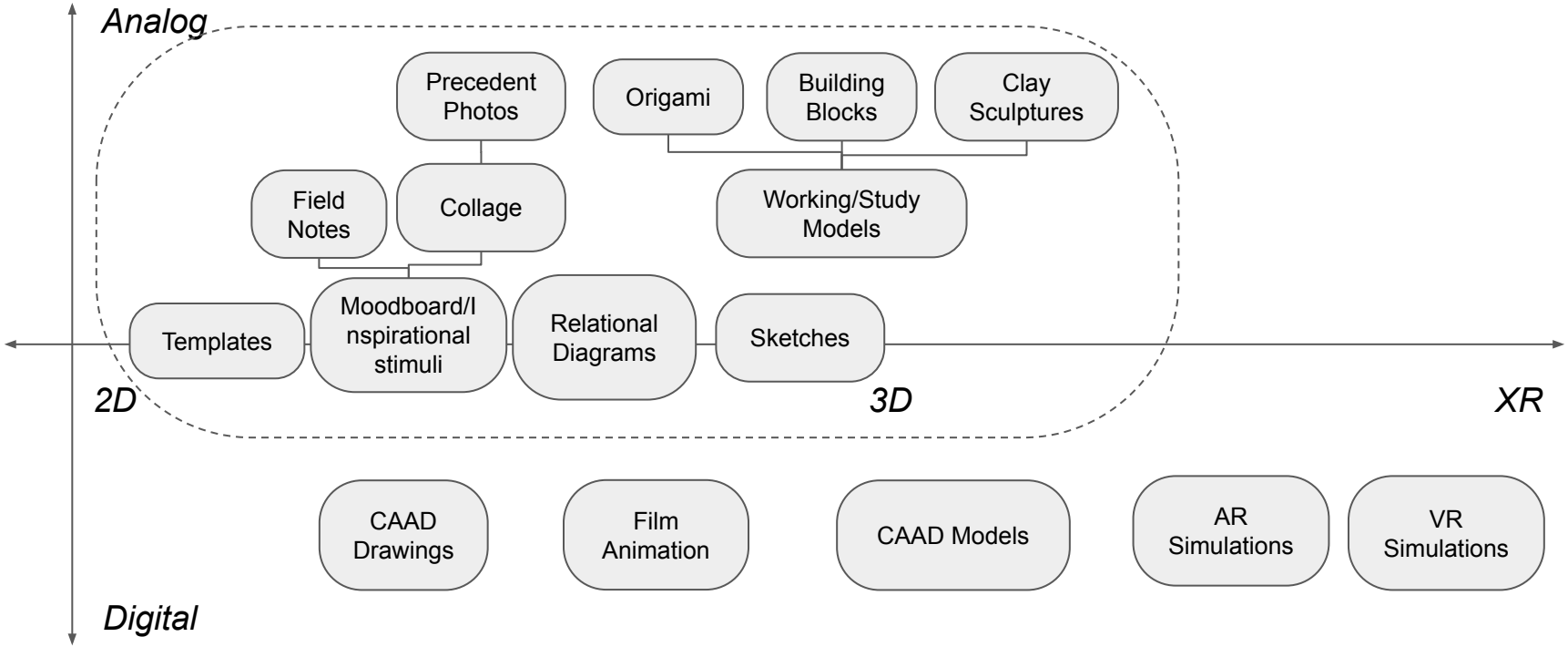




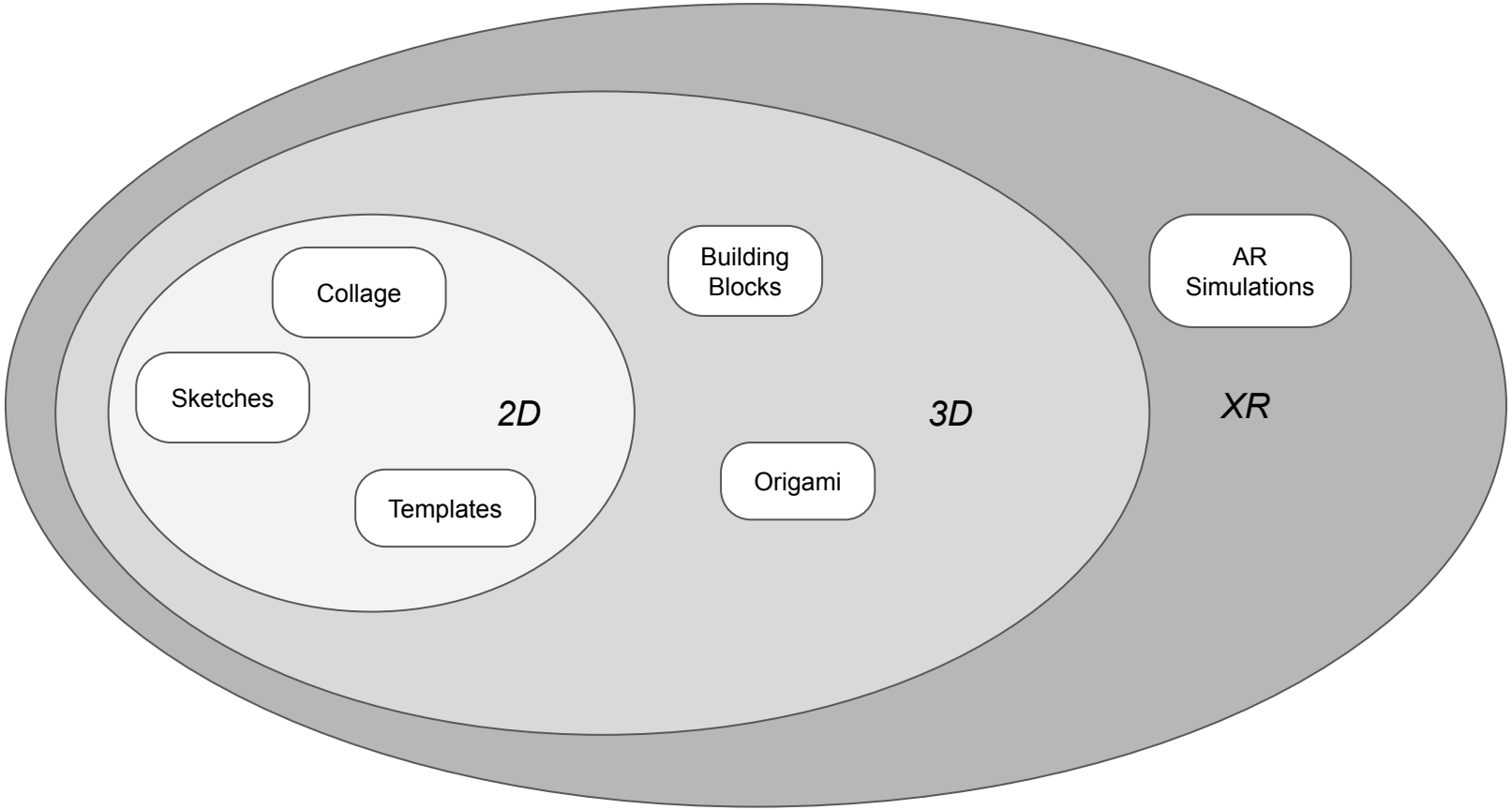
Dimensions of Ideation Tools



Dimensions of Ideation Tools



Functions of Ideation Tools



Quality of Ideation Tools & the Potential of Hybridization

"(The) aspect of quality is more important than the availability of a prescriptive method or the presence of a technical infrastructure...advanced technological solutions sometimes even hamper good development of a design (Cheng and Kvan 2000; Achten, 2002)."

WORKSHOP

Collaborative Dimensions Survey

Survey Framework: *Collaborative Dimensions*

Visual design thinking: a collaborative dimensions framework to profile visualisations

Sabrina Bresciani, Institute for Media and Communications Management, University of St. Gallen, 9000 St. Gallen, Switzerland

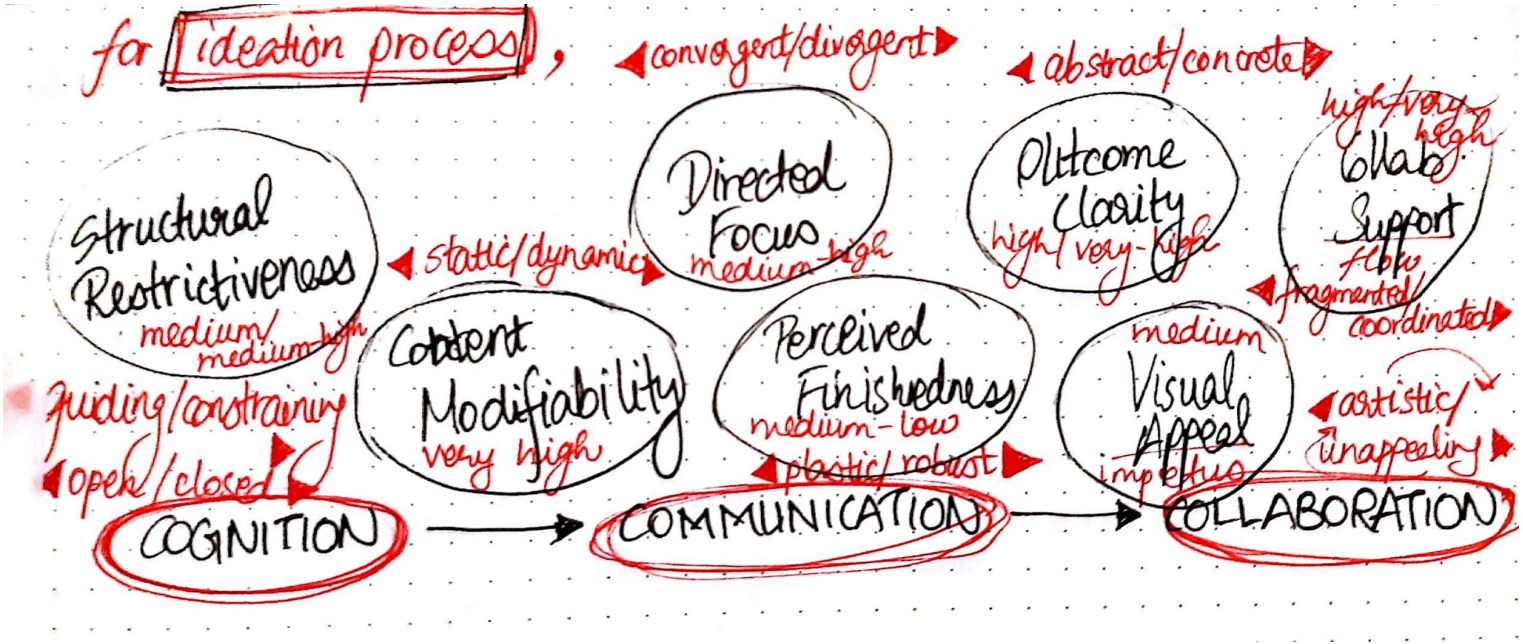
Design Thinking is predominantly visual: a variety of visualisations – from sketches to analytic diagrams – can support designers' work. Each visual format has affordances that constrain and enable specific cognitive and collaborative actions: how can we describe, select and design visualisations for supporting specific phases of the design process? By integrating literature from related domains we developed a "Collaborative Dimensions of Visualisations framework", which allows to distinguish seven traits of visualisations: Structural Restrictiveness, Content Modifiability, Directed Focus, Perceived Finishedness, Outcome Clarity, Visual Appeal and Collaboration Support. Each dimension is described and an illustrative example is provided. The framework is a pragmatic and theoretically grounded discussion tool aimed at helping designers make more informed decisions regarding the visualisations they work with.

Keywords: visual representations, design process, design thinking, affordance, co-creation

Cognition	**1. Structural Restrictiveness**	Weakly/strongly structured	Star and Griesemer, 1989
		Premature commitment	Star and Griesemer, 1989
		Viscosity	Green and Petre, 1996
		Indexing	Blackwell et al., 2001
		Free rides	Blackwell et al., 2001
		Useful awkwardness	Blackwell et al., 2001
		Open/closed context type	Fong et al., 2007
		Associability	Parouti et al., 2015
		Visual Restrictiveness	Alexander et al., 2015
		Structuration	Bresciani & Comi, 2017
	2. Content Modifiability	Error-proneness	Green and Petre, 1996
		Lability	Blackwell et al., 2001
		Permissiveness	Blackwell et al., 2001
		Modifiability	Hundhausen, 2005
		Medium	Fong et al., 2007
		Staleness Factor	Fong et al., 2007
		Malleability	Fong et al., 2007
		In flux/static/stable nature of the object	Ewenstein & Whyte, 2009
		Editability	Parouti et al., 2015
	3. Directed Focus	Detail in context	Blackwell et al., 2001
		Unevenness	Blackwell et al., 2001
		Focus	Eppler, 2004
		Programming Salience	Hundhausen, 2005
		Importance	Fong et al., 2007
	4. Perceived Finishedness	Plastic/robust	Star and Griesemer, 1989
		Provisionality	Green and Petre, 1996
		Provisionality	Hundhausen, 2005
		Provisional appearance	McGrath et al., 2016
Communication	**5. Outcome Clarity**	Abstract/concrete	Star and Griesemer, 1989
		Different meaning - common structure	Star and Griesemer, 1989
		Conventionalized/customized	Star and Griesemer, 1989
		General/specific	Star and Griesemer, 1989
		Abstraction	Green and Petre, 1996
		Hidden dependencies	Green and Petre, 1996
		Visibility	Green and Petre, 1996
		Closeness of mapping	Green and Petre, 1996
		Consistency	Green and Petre, 1996
		Diffuseness	Green and Petre, 1996
		Hard mental operations	Green and Petre, 1996
		Creative Ambiguity	Blackwell et al., 2001
		Specificity	Blackwell et al., 2001
		Synopsis	Blackwell et al., 2001
		Visual immediacy	Karabeg, 2006
		Granularity	Fong et al., 2007
		Layers	Fong et al., 2007
		Abstract/concrete role over time	Ewenstein & Whyte, 2009
		Tangibility	Parouti et al., 2015
	6. Visual Appeal	Role-expressiveness	Green and Petre, 1996
		Story Content	Hundhausen, 2005
		Visual impetus	Karabeg, 2006
		Visual impedance	Karabeg, 2006
Collaboration	**7. Collaboration Support**	Secondary notation	Green and Petre, 1996
		Progressive evaluation	Green and Petre, 1996
		Coordination	Eppler, 2004
		Documentation	Eppler, 2004
		Consistency	Eppler, 2004
		Accountability	Eppler, 2004
		Traceability	Eppler, 2004
		Controllability	Hundhausen, 2005
		Referencability	Hundhausen, 2005
		Inclusivity	Fong et al., 2007
		Synchronization	Fong et al., 2007
		Traceability	Fong et al., 2007
		Dyadic/multiple subject-object relation	Ewenstein & Whyte, 2009
		Traceability	Parouti et al., 2015

Figure 1 Classification of visualisation's characteristics emerged from the literature. Legend: ▨ Field of Visual Languages and Information Visualisation; □ Field of Design Studies and Management

Survey Framework: *Collaborative Dimensions*



Survey Framework: *Collaborative Dimensions*

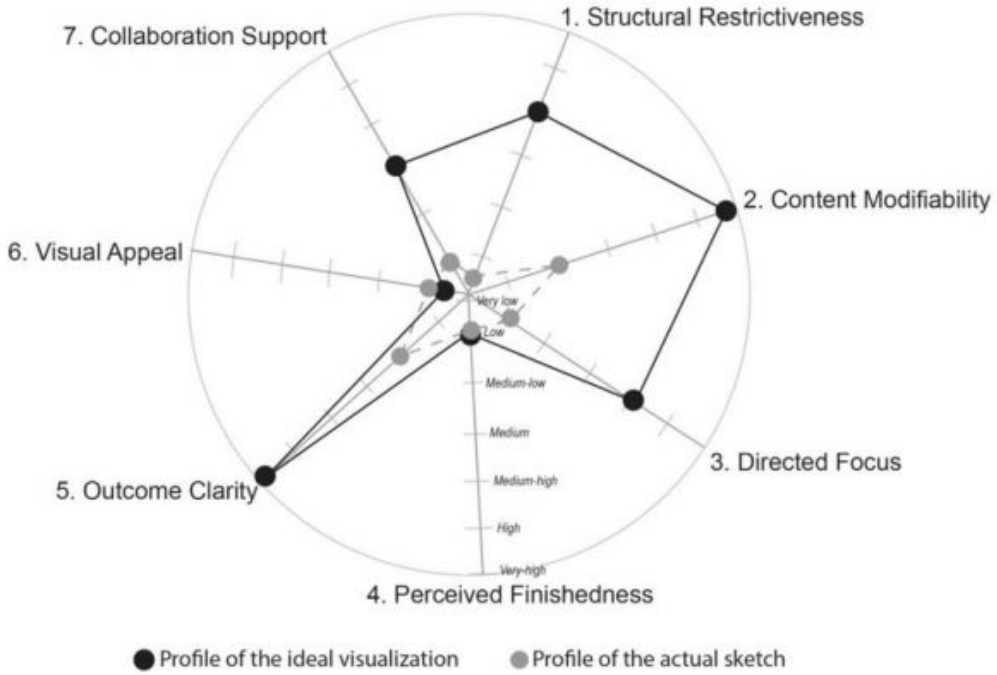
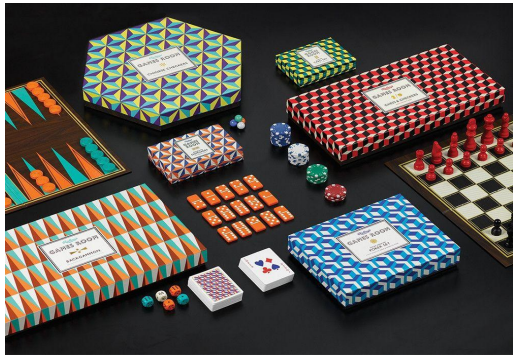


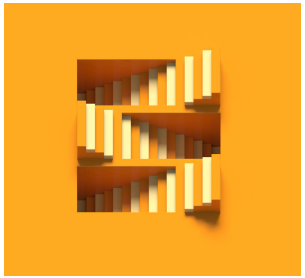
Figure 3 A radar graph of the Collaborative Dimensions of Visualisations framework for comparing the actual with the ideal (as defined by the meeting participants) visualisation profile

LET'S COOKIES & SURVEY!

DISCUSSION



Top: © Multiple users, Google Cloud,
https://www.behance.net/gallery/68034281/Google-Cloud-Earth-Day-2018 ,
Above: © James Paulius, Area Ware,
https://www.areaware.com/products/blockitecture?variant=15314112938019



Top: © Akihiro Ito, Torafu Architects,
http://torafu.com/works/dow,
Above: © Prateek Vatash, Emotive Pixels,
https://www.behance.net/gallery/60132247/Emotive-Pixels

Top: © Ridley's Game Room Compendiums, Wild+Wolf
https://store.wildandwolf.co.uk/pages/ridleys-games,
Above: © Cinq Points, Archifold,
https://cinqpoints.com/en/12-shop/

References

1. Andō, Tadao. *Tadao Ando 0: process and idea*. Tōtōshuppan, 2010.
2. Carpenter, Edmund Snow, and Marshall McLuhan, eds. *Explorations in communication: An anthology*. No. 218. Boston: Beacon Press, 1960.
3. Friedman, Yona, and Manuel Orazi. *Yona Friedman. The Dilution of Architecture*. No. BOOK. Park Book & Archizoom, 2015.
4. Holl, Steven, Juhani Pallasmaa, and Alberto Pérez Gómez. *Questions of perception: phenomenology of architecture.* William K Stout Pub, 2006.
5. Ingold, Tim. *Making: Anthropology, Archaeology, Art and Architecture*, 2013.
6. Merleau-Ponty, M. *Phenomenology of Perception*, 2002.
7. Montello, Daniel R., Karl E. Grossner, and Donald G. Janelle, eds. *Space in mind: Concepts for spatial learning and education.* Mit Press, 2014.
8. Pallasmaa, Juhani. *The Eyes of the Skin: Architecture and the Senses*, 2012.
9. Pallasmaa, Juhani. *The Thinking Hand: Existential and Embodied Wisdom in Architecture*, 2009.
10. Schön, Donald A. *Educating the reflective practitioner*, 1987.
11. Turner, Phil, and Elisabeth Davenport, eds. *Spaces, spatiality and technology*. London: Springer, 2005.
12. Yiannoudes, S. *Architecture and Adaptation: From Cybernetics to Tangible Computing*, 2016.

THANK YOU!