Method and the absence of modernism

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ABSTRACT: Recent research in design methodology has developed a theory of underlying, skeletal cognitive structures on which individual, and idiosyncratic, architectural design methods are constructed (Plowright 2014). In this theory, cognitive frameworks are illustrated by connecting19th century rationalist method development to late 20th and 21st century architectural designers with little attention to the impact of Modernism on process. As Modernism introduced strong values into architecture, the question became whether Modernist positions also introduced any new frameworks for design methods beneath the topological and representational difference that appeared to be a radical departure from then-current (late 19th century) design processes. The analysis was focused on a small corpus of influential textual evidences of two generations of "High Modernists" to examine representative positions. This research follows the traditions of Cognitive Linguistics which considers linguistic evidence as point of access to cognitive processing. The research used semantic and concordance based qualitative tools to examine the present intention and approaches to design. Semantic indicators for cognitive frameworks were developed, along with control terms that addressed project framing and approach.

Evidence in the corpus clearly showed the architectural thinking of two central figures involved in Modernism, Walter Gropius and Paul Rudolph, did not develop a new framework for approach but primarily followed the established tradition of methods based on forces and patterns. One of the most interesting findings was that today's dominant framework of *concept* was absent as a method in the text. The term, and equivalents, was widely used but it was never operationalized as value testing within method. Instead, a parallel concept of *art* was introduced in the writing to hold what was considered non-technical and non-describable content. Finally, there was a limiting of values in the initial starting state and active content to a narrow margin focused around a perceived position of social progress and a few environmental factors. Ultimately, the research identified clear framing changes (belief and values) but did not reveal any change in methodology (process and tools).

KEYWORDS: Methodology, Modernism, Cognitive Framework Theory, Discourse Analysis

INTRODUCTION

Recent research in design methodology has detailed underlying, skeletal cognitive structures on which individual, and idiosyncratic, architectural design methods are constructed (Plowright 2014). However, the exploration of a cognitive framework theory of design method connected 19th century rationalist design procedure development to late 20th and 21st century architectural evidences with little attention to Modernism as a ideological movement. As Modernist ideas introduced strong values into architecture, the question became whether designers associated with the Modern movement introduced a new framework for design methods as a radical departure from then-current (late 19th century) design processes or simply adopted those historic procedures within an alternative value structure. To say it a different way, does the topological and representational difference pursued by Modernist designers follow from changes to process structures?

In order to access the intellectual content that would give evidence to method processes, the research focused on textual evidences of a sample of Modernist positions in terms of applied procedures. The project worked from the Cognitive Linguistic position that textual and linguistic evidences are representative of cognitive processes (Croft & Cruse 2004; Geeraets et al 2006; Kristiansen et al 2006). There are many forms of architectural analysis from formal analysis of built work, analysis of architectural media or explorations of co-current cultural documents. However, this study was concerned with thinking and knowledge systems. While there is common understanding within architecture that the primary modality to access and transfer architectural knowledge is the drawing (Forty 2004, Evans 1997) as well as the completed architectural object/building (Stevens et al, 2009), cognitive decisions and framing positions are very difficult to identify without a fully documented and notated set of process evidences - something extremely rare in our design culture. An alternative source for design thinking processes can be found in written sources. Text has been an important form of knowledge transfer in architecture starting with changes in communication technology, such as the woodblock print and, later, the printing press. The advent of the pattern books of the late Renaissance and Enlightenment, such as those by Serlio, Vignola and Filerete, not only opened up architectural knowledge to laypeople but also reinforced standardization of approach. While the drawing has been called the real site of architecture (Evans 1997, 156), the transfer of architectural knowledge through text is also extremely influential. One only has to scratch the surface of the architectural community to reveal the importance of text-based communication. Books such as Vitruvius' *de Architectura* (first century, AD), Alberti's *On the Art of Building in Ten Books* (1452), Palladio's *The Four Books of Architecture* (1570), Marc-Antoine Laugier's *Essay on Architecture* (1753), John Ruskin's *The Stones of Venice* (1851-3), Le Corbusier's *Vers une architecture* (1924) and, in the contemporary period, Aldo Rossi's *The Architecture of the City* (1966), Robert Venturi's *Complexity and Contradiction in Architecture* (1966), Rem Koolhaas's *Delirious New York* (1978), Bernard Tschumi's *Architecture and Disjunction* (1994), Juhani Pallasmaa's *Eyes of the Skin* (1996), Gaston Bachelard's *The Poetics of Space* (1994), or Peter Zumthor's *Thinking Architecture* (2006) are examples of text-based position and process documentation, with little evidence of traditional drawings or other image modalities. An analysis of architectural thinking through the study of written text with a focus on latent and semantic aspects allows access to understand larger

relationships and philosophical positions. In this study, "architecture" is not considered to be the building but the thinking process by which the building emerges. This allows us to study conceptual and procedural processes independent to "what it looks like".

Working from this principle, the research project examined a corpus of writing of two generations of identified high Modernists, Walter Gropius (1883-1969) and his student, Paul Rudolph (1918-97). Both individuals occupied critical and influential roles in both the practice and education of architecture, Gropius as Chair of Architecture at Harvard University and Rudolph as Dean of Yale Architecture School. The corpus consisted of a collection of 15 essays (P1) and an extended essay (P2) on the Bauhaus philosophy authored by Gropius (50,580 and 13,364 words, respectively) and 20 articles (P3) by Rudolph (34,870 words). Both sets of articles had been gathered into edited volumes. All text in the corpus was chosen due to its explicit purpose to transfer method and philosophical positions between the authors and their intended audience – the architectural student. As such, the sample was written to explain the authors' approach and position towards architectural design, not to address a single building or as a ideological position. That is, the essays were to be instructive and pragmatic. Gropius wrote that the purpose of the writing was "to introduce a method of approach which allows one to tackle a problem according to its peculiar conditions." (Gropius 1974, 17) while Rudolph lamented that while "Geniuses probably should not be burdened with any kind of architectural school; [...] those of us who are less fortunate need some direction and a method of approaching a problem" (Rudolph 2008, 8). It was considered important that a clear value to method was found in the corpus, as well as testability that comes along with verifying outcomes (Gropius 1974, 12). Gropuis' texts were written between 1937 and 1965 while Rudolph's articles are between 1952 and 1998 with a median year of 1961.

Based on the stated positions of the authors and the purpose to transfer design method knowledge to students and a wider community, the corpus was considered representative of sample of process in Modernist positions. At the same time, one must also recognize that Modernism was a large cultural movement of aligned approaches so this corpus is not, and does not claim to be, comprehensive.

1.0 THE FORMALIZATION OF DESIGN METHODS FRAMEWORKS

1.1. Rationalist foundations

The cognitive frameworks of design process were formalized during the late Enlightenment and the Rationalist movement of the 19th century. While some aspects of these structures can be found earlier in architectural treatises, it isn't until a Western society fully invested in scientific method and formalized pedagogy that these frameworks are founded as clear, repeatable structures. By the end of the 19th century, there were three recognizable information sources that drove design thinking structures – patterns, forces and concepts (Plowright 2014, 33-52).

The first truly rational architectural design method was produced by Jean-Nicolas-Louis Durand (1760-1834) and published in his book, *Précis of the Lectures on Architecture* (1802-5). Durand's text was one of the first to address architecture as an issue of design rather than a set of construction details and practices (Picon 2000, 1). This meant that not only was it the first method of architectural design based on the rational thought process of the philosopher Rene Descartes, it was also conceptual in nature rather than a practical pattern book, making it intellectually different to the popular volumes of Vignola and Serlio. Understanding architecture not as the building, but as the thought process that creates the building, was a critical shift. Durand's method presented architectural design as the application of *patterns* and *rule-sets* using composition and arrangement of elements in space to drive design decisions. Patterns, as source material, could create compositional rules and are seen by the designer to hold the best type of information to allow for relevant outcomes in final design. A framework focusing on pattern application then limits the tool selection as well as structures how decisions would be made and what type of information would be available to the designer – stressing composition and typology over cultural and social use of space. Cultural and social content is still present, only it is held in the patterns rather than being applied independently as part of the design process (Plowright 2014, 39-40).

The second major framework for architectural design is one based on forces. Although this approach differs conceptually from the application of pattern-based rules, it developed from the same rational, scientific approach as the one detailed by Durand. The force-based framework focuses on systems thinking and the negotiation of complex forces conceptualized as pressures, assets, constraints and flows. The point of the framework is to prioritize those forces as source material allowing a designer to act upon them through formal responses. Documentation of the framework can be found in Eugène-Emmanuel Viollet-le-Duc's 1873 book, *Histoire d'une maison*, although the attitude towards forces can also be found in writings as far back as the Renaissance architect Leon Battista Alberti (Plowright 2014, 186). On a process level, a force framework considers architectural form as the direct manifestation of forces, flows or pressures (Sullivan 1918; Alexander 1964; Groak 1990). Identifying these pressures through the introduction of a series of *constraints* and *assets* allows decisions to be negotiated, moving towards a final proposal. Many designers who approach their work using a *force-based* methods tend to believe that design is a problem-solving process and that design is simply the resolution of conflicting forces (Plowright 2014, 44). Problem solving of this type addresses socio-cultural and environmental levels rather than production, but also introduces fallacies of technical rationalism and positivism – i.e. that social reality is objective and fully measurable, therefore solvable.

The final identified framework, concept, is one that has aspects found in the theoretical notion of character forwarded by Gabriel-Germain Boffrand (1667-1754) and analogy as found in the Renaissance architects Alberti, Francecso Di Giorgio (1439-1502), Filarete (1400-1469) and Palladio (1508-1580) as well as the Revolutionary architects Étienne-Louis Boullée (1728-1799) and Claude-Nicolas Ledoux (1736-1806). Both positions stress coherence as the goal of the

outcomes and the major source of the model for architecture was poetry and literary arts. Boffrand believed that there was such a great affinity between poetry and architecture that it was possible to take principles from the former and apply them to the latter. In this case, it was the overall effect of poetry in terms of its expressive mood which Boffrand was interested. As such, the approach focused on aligning the parts of the composition with the intention of the whole. The concept of character became institutionalized into architectural education through the École des Beaux-Arts of the early 1800s through the use of the *parti, or "what characterizes a building"* (Cret 1941, 12) The Beaux-Arts approach is different to what we would consider a contemporary approach to concept as parti stressed formal composition over conceptual ideas and emotive effects. The contemporary framework of concept, instead, owes its structure to a rational investigation in literature through an essay titled 'The Philosophy of Composition' (1846) by the American poet, author, and critic Edgar Allan Poe (Plowright 2014, 252). In this essay, Poe reinforced the philosophical position Baumgarten had developed over a century before. Picking up on *artistic unity or lucid order*, Poe called for the development of a *unity of impression*. In order to have unity, there would need to be a focus. For Poe – as for Boffrand, Blondel, Boullée, and Ledoux – that focus or central idea would be first and foremost on *effect*. In architecture, this meant that concept is a top-down approach which uses a "big idea" to structure decisions within the design process unlike patterns and forces which are emergent, bottom-up processes,. The *concept-based* framework revolves, then, around the creation of a central idea which is used to organize the parts of design proposal. All aspects of the design are then judged against, and should reinforce, the central idea.

All three of these major design frameworks where codified in the 19th century through the pursuit of rationalism and can be found underlying 21st century design methods, surviving both the German Idealistic position of genius and idiosyncratic self-centeredness of Romanticism (Plowright 2014). Modernism, as a major cultural movement that occurred between these two periods and as the progenitor of contemporary attitudes in either agreement or opposition, presents itself as an intervention in the intellectual life of Western Culture. As a movement, its proponents took a clear position on assessing, or abandoning, history and traditional processes in order to have a clear sense of difference between the now-future, the then-present and the past. Gropius reinforced this attitude when stating the goal of the Bauhaus was to "find a new approach which would promote a creative state of mind in those taking part and which would finally lead to a new attitude toward life" (Gropius 1974, 21). It would make some sense that Modernist positions attempted to change design methods by introducing new frameworks for the procedural operation of design.

2.0. METHODOLOGY

The research used Qualitative Data Analysis (QDA), semantic and concordance based methods accessing both word search protocols as well as close reading in order to examine intention and approaches to design in the corpus. Semantic indicators for cognitive frameworks were developed using major equivalencies mapping to information sources. In addition, control terms were introduced that addressed generic project framing and approach to capture concepts external to the frameworks. Coding of the corpus occurred using ATLAS.ti 7.5.0 qualitative data analysis workbench. The predetermined code list was used to tag the text on a full, close read in addition to in vivo, or constructed, coding for relevant but unexpected aspects of text. Once the text was fully tagged, a second pass was activated using the developed code list as a automated word search to determine if any instances had been missed. On completion of the coding, the indicator terms were examined for concordance, or what context the term was persistently applied.

2.1. Semantic indicators and concept hierarchy

The major hierarchical categories for qualitative coding were references to general design methods, force-based frameworks using systems and emergence indicators, pattern-based frameworks using type and rule based indicators, and concept-based frameworks using coherence indicators. Each of these categories was tagged for presence, and any sub-categorical factor was noted independently. In general, the counts from these indicators denote the physical presence of the word (strict word count) but for more complex indicators, such as "fuzzy repetition" or "relationship between phenomena", the matching concept in the text was tagged without explicit word use.

In addition to the predetermined codes, in vivo codes were developed as part of discovery of concepts in the corpus (grounded theory approach). These additional codes include art, artist, project method, environmental references (sunlight, air, biophilia, climate), human relationships, social responsibility, genius, problem-solving and affect. They reflected themes dominant in the corpus related to method theory but not part of procedural or framework structure. Finally, an open code was maintained for any reference to design factors that did not meet the force, pattern or concept indicators. This code would alert for the presence of an alternative underlying framework for design process prioritized by Modernism procedures.

2.2. Word presence and density

The research data showed interesting trends even on a basic quantitative level through word or concept occurrence and density (Table 1). First, all predetermined codes were discovered in the corpus with clear indicators towards method approach and value structures. While there were only 26 occurrence of an explicit reference to a method (0.07% density), indicators for the three major frameworks occurred 740 times with a minimal density of 2% based on discrete word presence rather than entire scope of semantic boundary, making this a significant presence. Other dominant concepts found within the corpus were references to art and problem-solving.

There is also a difference in presence of indicators found in the Gropius or Rudolph sections of the corpus allowing some speculation on diachronic effects of concept embeddedness in method approaches. The major Gropius section is balanced between force and pattern references (both 0.05% density) but with dominant pattern references when looking at all indicators under this category (total of 97 or 0.19% density for pattern rather than 46 for force). The presence of pattern based indicators in Gropuis' text is unsurprising considering his focus on type and repetition in industry. However,

while the Rudolph text was more urban focused overall, it had a significant deficit of pattern indicators that usually thrive in urban design contexts. A postulation would align this drop with the suppression of pattern-based approaches in the mid 20th century before they resurfaced in the 1970s through the typology and typo-morphology movements (Plowright 2014, 146). There was also a significant increase in the use of concept-based terms in Rudolph compared to Gropius, with a rise from 0.08% density to 0.25% density which suggests changing attitudes to architectural image values which encouraged the use of more "acceptable" design processes.

There were several exceptions evidenced through their absence from the quantitative data. First, there was no reference to any indicators besides those generated by the three design frameworks formalized in the 19th century. The second major absence a lack of reference to explicit design information internal to the method other than a few references to air movement, climate and sunlight. Although there were references to social and cultural factors, these statements were disconnected from discussion of methods themselves.

Table 1: Semantic indicators occurrences and density

	Gropius – 1974 (1937-65)		**Gropius – 1998 (1965)**		**Rudolph – 2008 (1952-98)**		**Total**
	Total Word Count: 50,580		Total Word Count: 13,364		Total Word Count: 34,870		
	Occurrences	Density	Occurrences	Density	Occurrences	Density	
METHOD - design	14	0.03%	2	0.01%	10	0.03%	26
METHOD - project	7	0.01%	0	0.00%	0	0.00%	7
FORCE FRAMEWORK REFERENCE	**27**	**0.05%**	**4**	**0.03%**	**32**	**0.09%**	**63**
Asset	0	0.00%	1	0.01%	0	0.00%	1
Circulation - pedestrian	0	0.00%	0	0.00%	3	0.01%	3
Circulation - vehicular	3	0.01%	0	0.00%	4	0.01%	7
Economics	6	0.01%	0	0.00%	0	0.00%	6
Flow	1	0.00%	0	0.00%	0	0.00%	1
Push	1	0.00%	0	0.00%	0	0.00%	1
Relationship between phenomena	7	0.01%	1	0.01%	11	0.03%	19
Relationship to environment	1	0.00%	0	0.00%	4	0.01%	5
PATTERN FRAMEWORK REFERENCE	**26**	**0.05%**	**1**	**0.01%**	**5**	**0.01%**	**32**
Arrangement	1	0.00%	0	0.00%	0	0.00%	1
Composition	11	0.02%	1	0.01%	1	0.00%	13
Configuration	0	0.00%	0	0.00%	4	0.01%	4
Fuzzy repetition	4	0.01%	0	0.00%	0	0.00%	4
Organic development/evolution	2	0.00%	0	0.00%	0	0.00%	2
Pattern as design quality	5	0.01%	0	0.00%	0	0.00%	5
Pattern as spatial order	2	0.00%	0	0.00%	0	0.00%	2
Rule	5	0.01%	0	0.00%	0	0.00%	5
Type	19	0.04%	4	0.03%	3	0.01%	26
Typology	10	0.02%	0	0.00%	2	0.01%	12
Urban pattern	12	0.02%	1	0.01%	11	0.03%	24
CONCEPT FRAMEWORK REFERENCE	**5**	**0.01%**	**1**	**0.01%**	**35**	**0.10%**	**41**
Approach	16	0.03%	0	0.00%	12	0.03%	28
Coherence	3	0.01%	0	0.00%	6	0.02%	9
Idea	14	0.03%	7	0.05%	20	0.06%	41
Notion	0	0.00%	0	0.00%	14	0.04%	14
Position	1	0.00%	0	0.00%	0	0.00%	1

OTHER FRAMEWORK REFERENCE	**0**	**0.00%**	**0**	**0.00%**	**0**	**0.00%**	**0**
ENVIRONMENTAL REFERENCE	3	0.01%	0	0.00%	0	0.00%	3
Air movement	2	0.00%	0	0.00%	0	0.00%	2
Air temperature	1	0.00%	0	0.00%	0	0.00%	1
Biophilia	1	0.00%	0	0.00%	0	0.00%	1
Sunlight	6	0.01%	0	0.00%	1	0.00%	7
Genius	3	0.01%	6	0.04%	9	0.03%	18
Art	**60**	**0.12%**	**25**	**0.19%**	**90**	**0.26%**	**175**
Artist	27	0.05%	12	0.09%	13	0.04%	52
Problem solving	**66**	**0.13%**	**12**	**0.09%**	**76**	**0.22%**	**154**

2.3. Concordance data and analysis

The coded terms were examined for congruence with the intended purpose of the research – to address persistent frameworks existing as structure for variable design method as evidenced by the corpus. The *force* and *pattern*-based codes and equivalences operated within the semantic bounds of their intended meanings. Indicators identified within the text representing the conceptual sub-categories were in alignment with the overall intentions addressing a particular aspect of the larger framework. Some environmental, economic, social and scale references where co-concurrent in both forces and pattern categories, acting as content by which the method would arrange values. These where found in several sub-categories as well as the main tag under *forces*. In *pattern*, however, the co-occurrence was almost exclusive to the *rules* tag with some relationship to *type* (as a rule). Under environmental references, sunlight was the most populous occurrence (5 in forces and 7 in pattern across the corpus) while forces had more raw references (34 compared to 16 in pattern). This is not unexpected as these factors are more explicitly used in force-based approaches as dynamic effects of non-formal information in shaping formal responses through relationships. In pattern, the same information drove a series of compositional guiding rule-sets but is less visible in process. This is in alignment with cognitive framework theory. No other force or pattern-based source material was addressed in the corpus other than that referenced in Table 1, evidence of a scarcity of primary data for design decisions. The Gropius sample also made multiple references to testing design for acceptance with the public (*field-test* was Gropius' term). There was no evidence of this attitude in the Rudolph sample.

The concordance relationship became problematic when looking at the *concept* tag and concept-based equivalents. While concept-based frameworks stress coherence using an overriding idea through the alignment of parts, there was no indication of this specific understanding in the corpus. There was, however, a diachronic shift in the use of the term between the Gropuis and Rudolph samples (discussed in Section 3). In addition, when concept was referenced in alignment with the code's intention, which occurred only in the Rudolph sample, it correlated with negative statements in the post-1969 text samples. Both *approach* and *notion* were an equivalence for the term *method* as a general statement. These two sub-categories consistently meant an attitude or a philosophical position towards the design or building, rather than a procedural structure to generate the design or building. As such, there is little alignment with the terminology and the concept-based framework structure making this approach basically absent in the corpus.

Problem-solving, as a term, occurred throughout the corpus and acted, in context, as an equivalence to the term *design,* while method was considered as a way to approach a problem (Rudolph 2008 8). Both Gropius and Rudolph stressed that the role of architecture was to solve societal problems rather than technical ones – Gropius concerned with social progress while Rudolph addressed issues of scale, the automobile and human response. The strongest relationship of *problem-solving* with framework codes was co-concurrence with *concept* tags as well as some connection to *forces* through *economics* . There is little connection to *pattern.* Of the three co-occurrence present, the two in the Gropius sample are negative (critical of existing patterns), while the Rudolph sample has a only one co-occurrence between pattern and problem-solving which addresses precedent as a form of knowledge.

3.0 DISCUSSION

Evidence in the corpus clearly showed that at least these representatives of two generations of Modernist architectural thinking did not show evidence of a new framework for design method but primarily followed the 19th and early 20th century tradition of Eugène-Emmanuel Viollet-le-Duc and Frank Lloyd Wright (forces), as well as Jean-Nicolas-Louis Durand (patterns). References and semantic indicators to method approaches were found throughout the text supporting both these framework positions. However, the term *method* was not consistently applied in the corpus to mean the procedural actions in the process of design. When Gropius and Rudolph used the term, they meant *a fixed outcome to a problem*. For both, then, method was the formal solution to a "problem" not the process to achieve that solution. The idea of problem and problem-solving dominates all the text, but this isn't dissimilar to how Durand also defined architectural design and the purpose of method. Durand clearly stated that his focus in his method was to solve a problem which was a building (Durand 1802, 86) – or two problems, fitness of use and economy of cost.

Methods inferred from a force-based framework did not explicitly identify priorities of non-formal information that would shape formal responses. *Forces* had a tendency to be limited to environmental factors (sunlight/air) and included few references to social content. However, there is clear intent to use force-based information to guide decisions within design. Gropius referred to responding to climatic conditions when he wrote "diversity of expression can result from this fact alone if the architect will use the utterly contrasting indoor-outdoor relations of these two regions as focus for his design conception" (Gropius 1974, 87) and " I want [the designer] independently to create true, genuine forms out of the technical, economic and social conditions in which he finds himself" (Gropius 1974, 17). Rudolph implied support for environmental forces by criticizing the lack of their use in work by Mies van der Rohe which, he wrote, had "no sense of place or climate, or the demands of immediate access and relationships to the environment." (Rudolph 2008, 109-10). There are gestural statements towards cultural forces as well but they are left undefined and generic, connected with general spiritual-philosophical terms such as harmony, progress, and architecture as a “true mirror of life” (Gropius 1974, 66) and "to develop on a higher plane" (Gropius 1974, 20). As such, these terms are not strictly force-based information but general framing beliefs disconnected from the operational method.

Pattern frameworks, through *typology* and *rule*, were referenced in the Gropius sample but had a tendency to vanish in the Rudolph sample, as noted above. When patten indicators occurred, they were strongly aligned with urban conditions and urban scale design with minor references to floor composition in housing. They did not connect social patterns with building form although support for traditional use of space can be found in both sections of the corpus. Ironically, Rudolph made the strongest expression in support of pattern-based methods when he stated that a designer can "go back to age-old principles. I think there are definite and definable theories, on how to relate volume to volume, mass to mass, texture and scale; the relationship of a building to the ground, to the sky, to neighbors. I really believe that you can define X number of approaches" (Rudolph 85). This is ironic since there little support for this statement in the semantic indicators addressing pattern approaches throughout his portion of the corpus although the intention foreshadows Christopher Alexander's *Pattern Language* by 15 years.

While both force and pattern-based frameworks are supported through evidence of indicators within the corpus, it is the concept-based approaches which are interesting in relationship to cognitive framework theory.

3.1. Shifting understanding of concept

Concept-based approaches to design operate through a coherence of parts in alignment to an overall goal and are strongest when the conceptual position can be translated and responded to by multiple dimensions of the design response. The original intent of 19th century methods using this framework was to map emotive intentions towards spatial effect giving a sense of expression to built form. As the approach was institutionalized by 19th century French architectural theory in the École des Beaux-Arts, concept or the conception of a building took on distinctly spatial content using the parti and the croquis as guides to the overall composition. Twenty-first century architectural designers tend to use concept-based approaches to stress external content (non-architectural) translated into architectural forms as a narrative overlay (Plowright 2014, 245) rather than then 19th century formal strategies.

Evidence of the changing use of concept-based approaches can be found in the corpus. When Gropius used the term *conception* to address building design, it generally meant the mental act of conceiving the spatial organization of a building, as what occurs before "realization" or the construction of a building (Gropius 1974, 64). In context, the term carries the same meaning as the Beaux-Arts use as found in the parti – an idea to organize the spatial composition of a building. The sense of use is somewhat confused in Gropius by being blended with indicators for truth and essential nature as in "my own ideas began to crystallize as to what the essential nature of building ought to be" (Gropius 1974, 47). This rhetoric connected the representation of the building to a perceived sense of social reality and timeliness but did not directly engage formal composition or formal strategies with those values.

It is the Rudolph section of the corpus that we find some indication of a shift in design methods using concept – moving from spatial conception to mapping visual and relational characteristics of an idea. The core term in the category moved from "conception" to "concept" between Gropius and Rudolph and there is a large increase in overall indicators in the later writing suggesting a rise of either use or discussion in the architectural community. Rudolph, dismissive of the Beaux-Arts system as unable to address "modern problems" (Rudolph 2008, 39), clearly used concept in alignment with that École des Beaux-Arts tradition. In agreement with Gropius, concept meant an organizing device for spatial composition and formal response (Rudolph 2008, 40, 54,108). There were two instances in the Rudolph text of concept not being used in this way, however. Rudolph referenced other architectural designers using concepts of "skin and bone" (Rudolph 2008, 17) and "goldfish bowls" (Rudolph 2008, 41) – visually heavy, attribute-based concepts using domain mapping (Plowright 2014, 107-30). The 19th century approach to concept did not transfer knowledge from other domains but used internal architectural content using sensori-motor information (axis, mass, void, edge, etc). These new occurrences of concept rely on non-architectural ideas being manifested or expressed in architectural form. Rudolph recognized the difference through value statements, dismissing this alternative information source for design expressing a lack of interest in "cartoons of architecture" (Rudolph 2008,133).

3.2. Design as art, designer as artist, and suppression of method

The problem of concept in terms of method can be found in the semantics of the corpus. In both the Gropius and Rudolph samples, the architect is considered to be, and taught to see themselves as, an artist. Architecture, therefore, is an artistic act and concept, in the sense of a way to approach a building design, is then aligned as a way to achieve an artistic outcome. Rudolph went so far to stress that concept is necessary for art when he wrote that the “harmonious relationship of parts eludes most architects today. Unless there is a single generating idea—an idea strong enough to bind all parts into a whole—no work of art will emerge” (Rudolph 2008, 95). While this statement is clearly addressing

coherence in a concept-based frameworks, the outcome was considered to be art as design. For Gropius, it is a sense of art that allowed a designer to understand their conceptualization so the design can be "the outcome of knack or creative impulse" (Gropius 1965 ,58) and be elevated to a higher plane – more truthful, more essential and more spiritual.

More than just concept, it seems that architecture was defined by art regardless to the framework approach. The issue for the evidence of methods becomes an position that extends from an idea found throughout the corpus introduced by the art alignment. Namely, that design as art cannot be taught and then, by association, methods can not be known. Gropius stated that that "it is through a creative attitude and independence of conception that [the student] will arrive at basic convictions, not by accepting ready-made formulas." (Gropius 1974, 56) and that:

> "Art, in fact, is not a branch of science which can be learned step by step from a book. Innate artistic ability can only be intensified by influencing the whole being, by the example of the design master and his work. Whereas the technical and scientific subjects can be learned by progressive courses of lectures, the training in design must, to be successful, be conducted as freely as possible, at the personal discretion of the artist" (Gropius 1974, 28)

For Gropius, art was a natural outcome as warranted by the goal of the Bauhaus to elevate production by reconciling the otherworldly creative artist with the "workaday world of realities" (Gropius 1974, 79). Gropius went as far to stress that art, as the way to approach problem-based design processes, was something innate to an individual. It was only through the intuitive that profound art could be created by naturally creative individuals. The role of the academy, the educational establishment, was to "sift out the artistically gifted" (Gropius 1974, 223) and provide a rigorous context for future work that is pursued independently.

Rudolph was clearer regarding teaching design, stating that "schools approach architecture as a creative art, but creativity cannot be taught" (Rudolph 2008, 93). Intuition and personal expression links design processes of the artist with the concept of genius in the Kantian definition of term. Genius uses intuition to understand the rules of aesthetic judgment before the rules are defined to conscious cognition (Kant 1892, 193). Yet, ironically, Gropius and Rudolph are dismissive of the value of genius – Rudolph more so than Gropius – looking for a more populist position as social progress through collaboration (Gropius 1974, 79), need for architectural education (Rudolph 2008, 8) and a critique of individual expressionness (Rudolph 2008, 25). These positions are aligned with the value of knowing and applying method creating quite a tangle of contradictions. Architecture can only succeed when the practitioner is an artist and new methods need to be developed for new problems. Yet, art processes cannot be known but occur through innate genius, while at the same time genius is not valued as collaboration is necessary (Gropius) or so rare to be unattainable (Rudolph). Concept, as an approach, waivers between a Beaux-Arts formal principle and an artistic vision while both are denied as positive values, leaving confusion to how to apply method to architectural design.

CONCLUSION

The research succeeded through its failure to identify the introduction of new methods or frameworks through Modernism. While there were clear indicators in the corpus that Modernist positions supported a change in starting bias and pre-method philosophical intentions, ones that aligned architectural design with social progress and cultural development, there was no evidence of changes in process itself. The focus on social problems and concern for cultural expression affected changes in material choice, spatial comprehension and social alignments but the semantic content of the corpus supported the continuation of 19th century design methods. Information sources remained stable with patterns, forces and concept identifiers present. While framing of cultural values influenced the starting position and many of the selection choices within the procedural processes of architecture design, they *did not affect* the cognitive framework on which those processes are built. In addition, there was a general lack of visibility of explicit methods in the corpus as well as a paucity of information categories that would affect methodological choices – mostly limited to some environmental effects.

The larger, and more interesting, aspect of the research was the effect on method when the conceptualization of design was blurred with art, something that occurred through these Modernist texts. This sense of designer as artist has possibly operated to suppress the role and visibility of methods in architecture. The combination of clear indicators of framework orientation in the corpus yet lack of explicit discussion of methods created a conflict of intention in the texts. Both authors expressed a belief that new approaches for design must be developed and they both stressed the need to understand and apply methods. Yet, a parallel concept of *art* as indescribable and unstructured was introduced in the corpus to hold what was considered non-technical - essentially social content – obscuring, and even suppressing, any explicit method. What is interesting is while both designers in the corpus were clear about their intentions to make design more accessible and more visible through method, neither acted on those intentions beyond that statement. Ultimately, design was to produce outcomes through intuition, not through method.

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