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ACTING ON INTELLECTUAL SYSTEMS: OF AN INTERVENING CONDITION AND BEYOND CONSTRAINED LIMITS

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ABSTRACT

Intellectual systems of problem solving often transcend disciplinary lines. That is fortunate because cross-disciplinary insights enable us to (i) be instructed by lessons outside our domain and (ii) acquire means to articulate our own/chosen models. Our domain of practices becomes enriched. Radding and Clark (1992) argued that the 11th and 12th centuries were critical in discipline formation for master-scholars and builders. Our interest falls upon certain formative intellectual systems they highlighted: Masters in both evolving disciplines paid attention and reacted to the works of other masters, this compelling deeper insight and innovation. They also learned to hold one idea in mind/vision while resolving other issues. Results were more sophisticated problem definition and solutions. This author suggests that conjoint *attitudes* were necessary for the intellectual systems employed to take place. Such attitudes are embedded in recognition of necessity of creating intellectual space to examine other-than-own ideas and recognition that complexity and multi-valency are pragmatic, existential conditions. Attitude is endogenous to engaging practices. A designer's attitude towards paradigms of problem solving may facilitate appropriation of those paradigms as own intellectual systems. The author draws briefly on certain mechanisms of solution generation to structure an argument about the necessarily pervious limits of solutions. Recognition of that facilitates disposition in favor of exploration. In the final analysis, the objective is to compel the question of how possibilities of our intellectual engagement with phenomena we are investigating may be expanded in order to capture the range and evolutionary potentials of those phenomena.

Keywords: *intellectual system, attitude, impulse, multi-disciplinarity*

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1. INTRODUCTION

The question of creativity often arises in design circles. It is a multi-facetted problem, but a common theme seems to be breadth of thinking. This paper aims to address a relevant question: *thinking about the nature of thinking broadly about solutions*, rather than on creativity as a construct. The author's goal is to highlight the case against constriction of range in solution seeking. Awareness of that, it is suggested, ought to be invested in molding the design student's intellectual disposition. The psychological construct, *openness*, may be of value.[1] It is the fifth factor of the *Five-Factor Model*. According to DeYoung, Peterson and Higgins (2005), openness embodies such qualities as imagination, intelligence and curiosity. They suggested that it is affiliated with the metatrait, plasticity--a "tendency to engage actively and flexibly with novelty...to explore" (p. 829). Openness embodies breadth, depth, and permeability to new ideas and experiences. There is motivation to "enlarge" and "examine" experience (p. 830). Overall, there is a general permeability of consciousness (p. 827).

A goal of the current paper is to be read sub-textually. It is a call for design teachers and mentors to mobilize an active personal agenda aimed at molding the disposition of design students in favor of exploration across a broad range of structures when considering solutions to design problems. Manifestly, however, the paper is a construction of an argument to substantiate broad exploration. The reader should be alerted early that the paper treads softly, its argument subtle--which is in the character of phenomena that come together to make up the argument. It attempts to *un-conceal* processual phenomena or connections that may be all but hidden. Intellectual systems assist us in solving problems, it argues, and an attitude of openness towards solutions is facilitative within that project. A key to such openness is cultivation of awareness that the nature of the world is, as an existential matter, of multivalency, variability and extension. Consequently, problem-solving ought to exist within that world of extension--in <u>both</u> answer and process.

2. MIND-IN-SOLUTIONS: INTELLECTUAL SYSTEMS

From the early years of the 11th century to early 13th century, wrote Radding and Clark (1992), important works in various fields were created, works which "[broke] sharply with earlier traditions" (p. 1). Particularly, they chose to compare developments in architecture (Romanesque and Gothic) with those in philosophy. They considered the developments in terms of discipline formation and framed the discourse around "mental skills" and "cognitive processes" that played a role in those developments (pp. 1, 3, 4, 5). They wrote: "Specifically, we shall examine...the way [master builders and scholars] approached the *intellectual* [italics added] challenges of their professions" (p. 1). The scope of this paper does not allow us to engage in an extended description of their arguments. We present, however, two intellectual systems outlined by the authors:[2]

(1) *"Holding individual details mentally suspended until they could be reconciled with several others" (p. 4)*[3]

Scholars: We consider an example among scholars. The Medieval teacher/theologian, Anselm of Laon (died 1117),[4] within the general question of ethics, distinguished between virtue and vice by stating that virtue "is the habit of a well-ordered mind" while vice is "the habit of a badly ordered mind" (p. 62). Anselm was working in the prevailing tradition of treating a case (or problem) as an isolated question to which a direct answer is given. By contrast, Peter Abelard, (c.1079-1142),[5] the great Medieval scholar and Anselm's one-time student, regarded the question within a greater

theoretical structure. For Abelard, the greater question of morality was to be addressed and the system articulated would then enframe each case (such as vice or virtue).[6] Abelard's conception of philosophy was of specific questions, "not as ends in themselves, but as interrelated parts of intellectual systems" (p. 61). Some vices, he reasoned, are not of the mind (e.g. vices and virtues "of the body, such as bodily weakness or the fortitude we call strength" [in Radding & Clark, 1992, p. 62]) and, in talking about morality, we had to find a way to distinguish those. He came to the conclusion that, if our concern was regarding morality, intention was the greater question when considering vice and virtue.[7] The mental effort, wrote Radding and Clark, involved "treating several issues at once, holding each in mind until solutions suitable to all had been found" (p. 63). He held the cases of vice and virtue in mind while he resolved another related theoretical question.[8]

Builders: Builders applying such an augmented intellectual system "found themselves having to design small details with an eye to the effects each decision would have on the whole" (p. 57). An example is seen in the work of the second builder under Suger's supervision of rebuilding St. Denis abbey church (c.1135-1144). While the first builder seemed to have worked sequentially from problem to problem, the second worked integratively, back and forth between elements and visual whole. For instance, on the west facade, the first builder was responsible for the three portals, the horizontal molding across the top of the central portal and the projecting pier buttresses between the portals. The molding is not perfectly horizontal--it is 20cm. higher on the south side. It has been argued that the builder was attempting to disguise a discrepancy between door dimensions copied from the 8th century nave and transept. Sequentialness is manifested: present solution followed definition of previous one.

The second builder was more interested in a unified whole. On the upper level, he levelled the molding lines. His interest was of a wholistic "visual regularity" aided by horizontality. He enhanced it by using horizontal bands of acanthus foliage to intensify horizontal divisions. Continuing the quest for visual unity, windows, though single openings, were flanked by arcading so that they did not appear to "float as abstract holes punched through a surface" (p. 66). The builder extended this system of integrated elements into the interior. In the center chapel, rather than emphasize boundaries between the two bays, he fused the spaces by using pilaster strips with bevelled edges "allowing the eye to slide around their complex polygonal shapes and to merge them with the wall surface rather than see them as supports separating units" (p. 67). Detached shafts around arched openings were set in niches, effectively masking surface transitions and deemphasizing thickness. In the new ambulatory, ornament (e.g. foliage on capitals) was repeated to unify chapels. Chamfered arches of vaults, of piers at chapel entrances and pilasters against chapel walls helped give continuity and unification to the space. In short, the second builder "worked back and forth between the different architectural and sculptural elements," holding one thing in mind while resolving another, as a processual intellectual system.

(2) *"The builders and masters of the later twelfth century were more obliged...to take into account the activities of their peers" (p. 80)*

For scholars, a shift in educational system was preeminent. Prior to the rise of Paris in the early 12th century as an educational center (and, hence, with a concentration of masters), typical schooling took place under individual masters in fairly scattered cathedrals. There were several implications of the rise of Paris as a center. Among them were that masters now worked in close proximity, rivalries [most likely] developed, and, consequently (and of significance to us), each

master had to be conversant with the works of other masters. As for builders, by the mid-12th century, there was evidence of close attention to the activities of peers (p. 97) and communication among one another (p. 98). As an example, when flying buttresses were first used at Notre Dame de Paris (c.1170-75), they were immediately copied elsewhere. When, later, faults were discovered in the original design and corrected (1220s), within a few years, the corrected system was employed in Bourges, Chartres, Reims and other works in places as far away as Spain (pp. 98-99). "Intensity of interaction" (p. 122) and attention to the works of others became an important aspect of problem solving.

In summary, intellectual systems framed critical problem-solving shifts that became more easily observable by the 12th century. A vital observation made by Radding and Clark is that the "striking accomplishments" were the result of "shifts in builders' and masters' *attitudes* [italics added]" (p. 11).

3. PROBLEM SOLVING WITHIN DOMAIN OF INTELLECTUAL SYSTEMS: MAPPING ATTITUDE AS FACILITATOR

As we proceed, it should be evident that what we are really investigating is bringing (of) mind to bear on issues. We may state that our objective is, borrowing the language of Foucault (1972), considering *procedures of intervention*, where we are attempting to evaluate limits of the "domain of validity" of phenomena--the way those limits may be restricted or ways in which they may be extended (pp. 58-59). One stands back in relation to a manifest set of concepts,[9] he wrote, and tries to understand what schemata underlie how ideas delineated might be linked. The project, summed Foucault, is one of seeking to discover how concepts (or phenomena) gain in extension or determination, are capable of being integrated into new paradigms and may be able to acquire new semantic (or, in our case, prerogative or generative) structures. Rearticulated, our objective is to explore how possibilities born of our intellectual engagement with phenomena we are investigating may be re-ennobled, re-valued and un-restrained in order to capture the range and evolutionary potentials of those phenomena.

A beginning step is to examine how the mind might proceed towards a design decision. Working of the mind is complex, so we construct a few vignettes merely to serve as heuristic conduits.

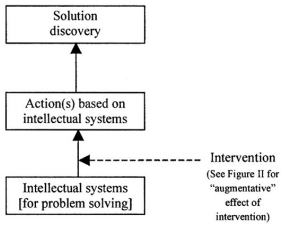

Figure 1: Mind brought to bear on issue,

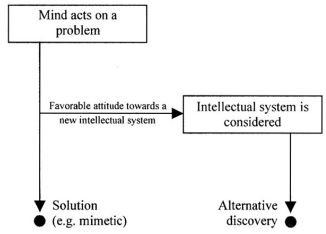

Figure 2: "Intervention" expanded

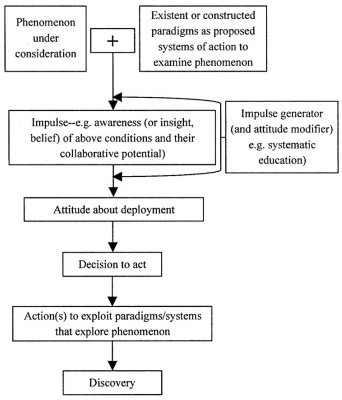

Figure 3: Mind brought to

Figure 1: Vignette I. Vignette I works in reverse. To get to a state of discovery, a set of actions sourced in intellectual systems of problem solving have to be initiated. Whereas, in order for those actions to be undertaken, intellectual systems need first to have been derived/established. At some point between mere availableness of an intellectual system and its mobilization for problem solving, the user is induced to apply the system. We may refer to that inducement as an intervention.

Figure 2: Vignette II. Vignette II perforates intervention. A possibility is shown. Mind proceeds along a particular trajectory of problem solving until an attitude about an alternative (or new) intellectual system motivates/instigates application of that system. The trajectory is modified.

Figure 3: Vignette III. We summarize the foregoing as follows: In order to complete a set of actions, the mind must first establish a commitment to perform those actions. Antecedent to commitment/decision is an attitude about action. Attitude is conditioned by an impelling force--we shall refer to it here as "impulse" (or a set of impulses)--such as insight, belief (Ajzen, 2006) and/or transcendent condition(s). (The notion of "transcendence" will be elaborated shortly.) Such an impulse may be of an innate or cultivated nature. When the latter, systematic education (which is of relevance to us) can yield its concomitants (e.g. insight, awareness, recognition, belief and so on) as impulse.[10] Attitude concerning an intellectual system deployable towards a phenomenon of interest mediates action--i.e. impacts decision about applying that system--and it can be molded.

3.1. Theory of Planned Behavior

In order to further systematize the above, we draw on Ajzen's (2006) *Theory of planned behavior* (see pg. 7). In Ajzen's model, intention is an immediate antecedent of behavior; it is a vital conative force. Leading to intention are a combination of factors. For our purpose, we focus on the entailed dimension of attitude. A clarification to be made is that Ajzen's "behavior" is substituted for by our "action" (or set of actions) on chosen intellectual systems. In addition, we add a post-behavior recognition that our actions yield certain results (see vignettes above).

The vignettes are inferior to Ajzen's model. They are, however, perhaps useful heuristic mediators to fulfil our momentary need. Ajzen's model, with its discriminated dimensions, is suited to scientific measurement--and that is essential. Sometimes, however, there may be possibility of additional "factors" which may not be easily expressible, but which perhaps contribute to or "round out" whole meanings of phenomena. Above, a category of these was described as "transcendent conditions." We

suggest that it is an existential state of affairs that there might be more information regarding a phenomenon than one possesses or has derived. Dant (1999) noted about objects that it is not always possible to reduce the nature of human interactions with them to isolated effects. The same, arguably, can be extended to the realm of ideas. Foucault (1972) talked about "innumerable complicities" that come together to condense into the part(s) of phenomena that we perceive (p. 138). Ricoeur (1991) observed that within a notion of a world, there exists also the notion of a horizon, something "which recedes when we approach it" and, therefore, has an inexhaustible capacity (p. 453). Ajzen's model sensibly identified the existence of control belief[11] as one of the necessary antecedents of behavior. It is suggested here that, in what may seem counter-intuitive, belief that there is relevant information out there that one does not yet possess which, arguably, can be interpreted as working *against* control, can also serve as motivation, rather than deterrent, to act. It is, as it were, that there was a realization, an existential disquiet or agitation, that impels action to seek further--as if, perhaps, there were an innate awareness of circumstances of existence. That can be channelled into an active component of shaping attitude rather than the alternative of deterrence from action--that, being the intent of this paper. When considering attitude, a whole, perhaps not fully expressible, is what is being indicated: a factor that precedes decision to act, prodded by a latent, potent mix of empirical, academic, cultivated insight and existential force.

Above, we examined Radding and Clark's (1992) description of intellectual systems in action during the 11th and 12th centuries. It is now possible to ground those developments within the current framework. The transcendent lessons concerning attitude are these:

Intellectual system: *Ideological and conceptual tolerance*: This is about intellectual scope and capacity. Intellectual permeability or capacity for percolation of ideas is acquirable as a means for solving problems. Pervasiveness of idealization is an existential condition and attitude can be grounded (manifested) in embracing creation of personal intellectual space to examine other-than-own ideas.

Intellectual system: *Holding an idea constant while interrogating another*: This is about progression (glide through time/sequences) and [pattern of] movement. Foucault (1972) has argued that generation of knowledge is not a phenomenon that moves along a smooth, uninterrupted trajectory. Spurts, disjoints and evasions are characteristic of evolution of phenomena. A world view or an attitude can recognize that, given complexity as a pragmatic condition, it is necessary at times to hold an idea in pause (temporal condition) while investigating another.

4. METAPHORS FOR AN INTEGRATIVE INTELLECTUAL SYSTEM: MULTIVALENCY AS INHERENT CONDITION OF PHENOMENA

A palpable lesson emerges from our investigation of Radding and Clark's (1992) historical narrative: Polyvalency is a fundamental characteristic of ideas.[12] Problem solving operates in a world of ideas, but also assumptions,[13] and it is evident that the set of solutions derivable for a problem has capacity to reflect the range embodied in ideas and assumptions. Epistemological subsystems across the spectrum seem to recognize this and to their arguments we shall momentarily direct attention. We ought, however, to reiterate our aim: Cultivation of an attitude towards problem that values multivalency as an operational system.

4.1. The lesson in test of significance

Our first insight with regard to acknowledging breadth within strategies of solution construction concerns a long-standing, familiar matter: the question of making a decision based on statistical significance of empirical study findings. Typically, a null hypothesis is either rejected or accepted based on comparison of calculated probability to an alpha-level that delimits the critical region. Rejection and acceptance are exclusive--and sometimes they are wrong.[14] Always, however, they gloss over the question of degree. Some findings are much closer to the critical value than others, yet all acquire the same conditional fate if they happen to fall on the same side of that point of decision. The procedure is also asymmetric. Oakes (1986) wrote: "Data are evaluated in the light of one hypothesis only and without regard to the possible alternative values a parameter may take" (p. 37). A significance test does not "consider possible values of the unknown parameter other than that value which is to be 'nullified'" (p. 38). A consequence is proneness to "pitfalls in inference" (p. 37). These all point to one thing: conclusions (or solution systems) that "draw a hard line" under conditions of complexity raise questions.[15] Realizing this, many turn to complementary models or procedures to assist them in generating adequate solutions. For instance, *confidence interval* is an *estimation* system that more transparently recognizes the inconstancy of conditions.[16] Possibilities that might have been obscured are afforded greater visibility. We have the benefit of induced curiosity--nourished by a range of appropriately performative[17] accommodations--as progression is made towards solutions.

The test of significance is not a bad system. That is not the point at all. All up to this point in this project, our insights have been of the more delicate nature than grand--from contemplating impulse to concept tolerance and progression as components of problem solving systems. The current argument about the test of significance is in that spirit of subtle but not un-instructive insight. Thus, our concern is not as it might first appear to the reader: it is less with the direct function of the test of significance than with what, in its nature, it might subtly induce or stimulate: Its design, intentional or not, co-opts a deterministic prerogative and in such heavy-handedness, it has potential to urge a user's predisposition towards closure. That potential impact on attitude is our concern.18

4.2. The lesson of residuals

Residuals are examined in, significantly, regression analysis. Residuals are indicators that show how well generated solutions match what obtains in reality. Their analysis assists the researcher in making a decision about the efficacy of the model she or he is using to seek understanding of a particular phenomenon. When observed deviations are not the result of randomness, they have explanatory potential because, if the researcher investigates them in order to create a model with better fit, the researcher is placed in a better position to explain the phenomenon in question. The relevance of residuals here is two-fold. First, their effect comes from behind. After what seems logical has been examined, the "left-over" is engaged. In doing so, one's control of the situation often is augmented--better solutions emerge. Second, they serve as reminders that exhausting all relevant variables--and hence, having a perfect solution--is, in some cases, more mythical than real. If we do not have a perfect solution, the matter is no longer deterministic. The magnitude (qualitative or quantitative) of what has been left out can damage the supposed efficacy of what appears right. Threat of absence concerns us as much as promise of what we have derived. Our search ought to be extensive.

4.3. The lesson of restriction of range

Range restriction occurs when potential range of values of a variable of a population to which one wishes to generalize is curtailed while conducting a correlation of that variable with another. The effect is a distortion of the relationship as one understands it (Bobko, 2001).[19] In Fig. V, the concept is used as a lens to contemplate restriction of solution-generation efforts or possibilities. Capacity to assess scope of solution effectiveness is affected. As with the test of significance and analysis of residuals, the lesson uncovered by range restriction is clear: phenomena tend to have extended possibilities that become clouded by constraining models.

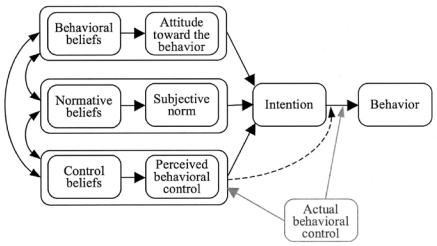

Figure 4: Theory of planned behavior (Ajzen, 2006)

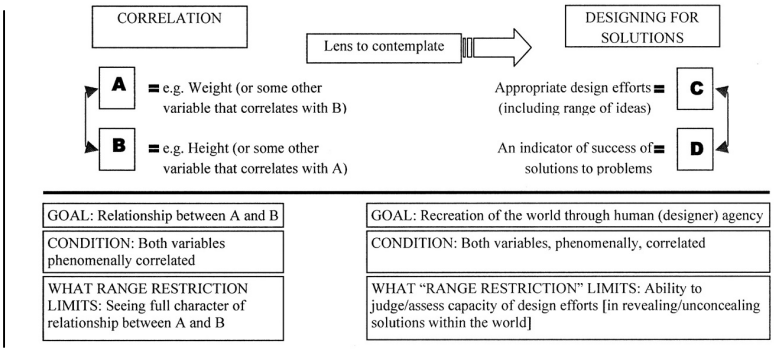

Figure 5: Range restriction as metaphor

5. THE UNIQUE, THE METAPHORICAL, THE MAGICAL[20]

Having reminded ourselves of these arguments from the basically positivistic realm, the case may now be examined from an alternative epistemological standpoint. One of the intervention systems of qualitative research is exploration of the *unique case*. The case or event that is different from the typical is allocated careful exploration in the conviction that something of value may be revealed in its interrogation. This stance of moving beyond a highly-restricted world view and minding other insights is vivid in Bachelard's *Poetics of space*, which will be used here as an instance for elaboration. Poetic exploration pushes past the hegemonic bounds of traditional science. In the space of the former, our image of the world and what one creates within it are "no longer under the domination of things," wrote Bachelard (1958/1994, p. 69). One is afforded opportunity to "bring the image to the very limit of what [she or he] is able to imagine" (p. 227). In poetic space, the imagination is not content with "a reduction which would make the image a subordinate means of expression," but what the exploration discloses demands to be interrogated as possibilities in real life, thus revealing a new world (p. 47).

Imagination, Bachelard (1958/1994) wrote, "augments the values of reality" (p. 3). One senses greater possibilities than the immediate, transcends it intellectually and moves into an "elsewhere" space (p. 184) for exploration. Associations with the "now" are probed. Existential depth is invoked. Take designing a house and its window for example. No longer is the latter's geometrical essence sufficient. It is to be seen as a revealer of the greater "cosmicity" of the home, a conduit to inner revelations about dwelling and being. The house spills a greater narrative when the lamp burns behind the window--perhaps of a family at repose, bound together in communion for the night, self-

acknowledging against the world outside. The poetic insight frames it in an irreducible insight. Barucoa (in Bachelard, p. 35), in the window's greater association with light, insight, penetration and "cosmicity," described an *etoile prisonniere prise au gel de l'instant.*[21] The richer narrative that re-inscribes the window within human experience, however, is not an insight restricted to an eminent few. A third-grader had this to write: "*This morning a snowflake fell on my windowsill. When it melted it looked like a light going out*" (Trimble, 1957).

A poetic imagination softens the restrictiveness of reality (Bachelard, 1958/1994). It liberates phenomena from hard-wired bonds to such things as utilitarianism, geometry and limits of social constraint. In the human mind, reality becomes conscious of its own depth (Bachelard, 1958/1994). To give an object poetic space, wrote Bachelard, "is to give it more space than it has objectivity" (p. 202). The dialectics of systems (be they intellectual or otherwise) as one over and against another have traditionally often been "promoted to the rank of an absolutism" and in the process, some of those systems sometimes become "endowed with [extraordinary] powers of ontological determination," (p. 212) perhaps thereby occluding possibilities of other insights. Ockman (1998) suggested that the axes of poetry and science tend to be seen as opposed to one another. Our resolution, through philosophy--but other means as well--should be to "make poetry and science complementary." Bachelard, like Foucault and Kuhn, she continued, has "directed epistemological inquiry away from the continuities within systems of knowledge...forcing new ideas to appear" (p. 2).

Methodological pluralism enacts dialogue about new insights. In a lecture, "*Architecture and fairy tales*," accomplished 20th century architect, Charles Moore, described the "immeasurable dimension" of the "architectural fairy tale." It is a solution and intellectual space that makes possible "insides bigger than the outsides...edges near the center...places where familiar rules are for a time suspended" (Moore, 1993, p. 11). In the fairy tale, Moore said, "the quite carefully established dimensions of everyday reality open up magically" (p. 11).

In all the foregoing arguments, we have simply pointed at an intellectual system: Active rendering of extension in parameters drawn around solution systems. An emergent disposition is grounded in an active, perennial, maintained recognition that limits of solutions are necessarily pervious, contingent on the circumstances that surround each reception condition and, hence, solutions can have breadth in their pursuit and discovery.

6. CONCLUSION

We have explored arguments about inflected schemas and routines of mind as generators of concept/idea, information, solutions, and so on. These schemas, which transcend disciplinary limits, indicate intellectual positioning that expands performatory compass. We advocated the notion that nature of the world is of multivalency, variability and extension and that problem-solving ought to constructively navigate that world of extension. Elsewhere, this author has observed that, to be pragmatic, variability is to be recognized as an irrefutable force (Stephen, 2008). In another location, we have addressed the case of information that is *inaccessible*--for instance, what already is, but is not known, or yet, what is to evolve. Borrowing an idea from architect Bernard Tschumi (1996), design,[22] to be effective, must consider its uncertainties. It is as desire, a driven movement in search of something deemed missing. Derrida (1981) suggested that at the moment of consummation (for us, when the theoretical and practical come together), there is fusion of desire

and satisfaction, of nonpresence (absence) and presence. Ricoeur (1991), as observed earlier, also noted that in the notion of a world exists also the notion of a horizon that recedes as we approach it and, "therefore, has an inexhaustible capacity" (p. 453). All of these point to an impetus: each event, situation, data set, and so on, likely contains more than is immediately apparent. Pushing boundaries, re-interrogating phenomena, and other such efforts might yield greater insight.

Kuhn (1970) noted that a paradigm is "an object for further articulation" (p. 23). An intellectual awareness thus shifts the meaning of paradigm from an immutable model to a system that has mutable parts. The enlightenment of normal science, Kuhn added, rather than depicting a finite state, "consists in...actualization of [a] promise" (p. 24) of a stable solution (see p. 28). This prospective intellectual positioning is to be seen as enframer of attitude--one that motivates suspension of disbelief in order to interrogate, carefully and appropriately, other mechanisms of problem solving.

Featherstone (1992) observed that the designer is a "cultural intermediary" who is needed to "ransack various traditions," produce new goods and also supply interpretations for their use (p. 19). That project may benefit from relief from *restrictions of range* (p. 26). There is a figurative insight we may borrow from Featherstone: "To construct an identity, to know who you are, you need to know who you are not, and the material excluded or confined to the boundaries may continue to exhibit a fascination and allure, and to stimulate desires" (p. 82). Solutions traditionally relegated to the fringes may exert an existential pull for exploration. Another insight is offered by Foucault (1972). He has warned us against a pervasive tendency in discourse to resolve contradictions or inconsistencies into a unity that is seen as the institutionally-acceptable way to ground our understanding of (and orient our transactions with) the world. His admonition is that orientation towards unification represents just one interrogative attitude and system. There is another *level of being and doing* where these relations of "contradiction" become the foundation of discourse. At that level, examining the very condition of non-unity becomes a project for discovery and extension of understanding or mastery.

The kinds of things set forth in this paper are not the kinds of things of which a design student is expected to be automatically aware. They are, more likely, strategic structures to be constructed by a design teacher/instructor/mentor to chart a path towards a design attitude to be embodied by the student.

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[i] Note that (i) This factor may also be named "intellect." (ii) Debate still surrounds the nature of the factor.

[ii] Given availability of space, it is not possible to present an example from both disciplines under both intellectual systems. Instead, one from each discipline is presented within the first system. The reader may explore more examples and extended arguments in Radding and Clark's book (see reference list).

[iii] What follows is based on Radding and Clark (1992).

[iv] Source: http://www.newadvent.org/cathen/01550b.htm (Retrieved July 31, 2009)

[v] Sources: http://www.newadvent.org/cathen/01036b.htm; http://plato.stanford.edu/entries/abelard/ (Retrieved July 29, 2009)

[vi] One other value accrued from articulating such a theoretical structure: it would be applicable to other cases or problems that fall into the domain of the greater question.

[vii] Unlike Anselm, he saw "the measure of morality [as] intention rather than action" (Radding & Clark, 1992, p. 61).

[viii] Note that, by using such a sophisticated system (which involved inscribing the dimension of intention), Abelard was able to do more. For instance, he was able to extend the case of vice to the conclusion that "vice...is not itself sin but only that which 'inclines the mind...to do something which is not at all suitable'" (Radding &Clark, 1992, p. 62). He was also able to apply the articulated theoretical structure to the case of penance: "Since sin is contempt of God expressed by inner consent rather than by deeds, penance must be similarly internal, taking the form not of confession but of contrition" (p. 63).

[ix] Concepts represent phenomena upon which language has been deployed in order to, so to speak, instantiate them through discourse (Foucault, 1972).

[x] Other forms of grounding apart from systematic education are conceivable: coercion, tradition/precedence, mere pragmatism/expeditiousness, instinct, etc.

[xi] "Control beliefs have to do with the perceived presence of factors that may facilitate or impede performance of a behavior....Specifically, the perceived power of each control factor to impede or facilitate performance of the behavior contributes to perceived behavioral control in direct proportion to the person's subjective probability that the control factor is present" (Ajzen, 2006).

[xii] It can be said of the world of human existence as a whole.

[xiii] "Assumptions" here may also be read as conditions, variables, etc.

[xiv] Oakes (1986) argued that accepting or rejecting is an act of decision rather than inference. Following Rozeboom, he contended that the "appropriate role of evidence in most situations in which a researcher finds himself [or herself, most obviously] is to offer rational grounds for a change in the degree of support to which a scientific hypothesis is entitled" rather than a role as "a calculus for decisions for action"--something which acceptance or rejection denotes (pp. 22-23). Decision, as such, is preclusive, whereas inference counsels and expands space of solution.

[16] Other issues with test of significance: (i) Subjective selection of alpha. [Rozeboom protested that "surely the degree to which a datum corroborates or impugns a proposition should be independent of the datum-assessor's personal temerity" (in Oakes, 1986, p. 23).] (ii) Significance is not explanatory power.

[17] In the end, similar information is derivable from both systems (significance test and confidence interval) (Oakes, 1986), but, where the one directly exhibits range, the other tends to shroud it.

[18] Performative: i.e. accommodations *act* in solutions derived.

[19] One might choose to regard a finding of non-significance as motivation to explore other parameters to which one might hypothesize. [As said much earlier, that could actually be harnessed to serve the goal of the current project.] There are, however, at least a few issues that, it might be argued, induce inertia: (1) There is tendency, as already stated, to treat arrival at a finding as the end of one coherent or bracketed endeavor. (2) Attempt to make an immediate repositioning that leads to an alternative claim other than hypothesized is likely to make a person run afoul of (ethical) precepts. Some redesigning is expected to be done. (3) The system appears less efficient than, say, interval estimation. In significance testing, one effectively exhibits one outcome while in interval estimation, a range of possible solutions are already visibly embedded into the exhibit.

[20] Admittedly, one's unit of analysis may modulate the argument, but fact remains that the condition can be a substantive intrusion.

[21] These three conceptions can be considered as separate units, but given limited space, they have been condensed & combined.

[22] "Imprisoned star caught in the instant's freezing" (Bachelard, 1958/1994, p. 35).

[23] For him, architecture.