Self-imposed Constraints as a Creative Resource in Art and Interaction Design

Authors
Michael Mose Biskjaer, PhD fellow, MA Aarhus University, Denmark Department of Information and Media Studies Helsingforsgade 14 DK-8200 Aarhus N, Denmark E-mail: mvmmb@hum.au.dk Phone: (+45) 8942 9217 Mobile: (+45) 3023 1223

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Kim Halskov, Professor, PhD Aarhus University, Denmark CAVI Helsingforsgade 14 DK-8200 Aarhus N, Denmark E-mail: halskov@cavi.dk Phone: (+45) 8942 9241 Mobile: (+45) 2899 2251

Although no transparent cross-disciplinary terminology or conceptual framework has yet been established, a feature that appears to characterise all creative processes is the challenge of balancing various constraints in a constructive manner to ensure the process’ progression toward a final goal. To help concretise the term ‘constraint’, a very basic definition is provided by Vandenbosch & Gallagher: “[c]onstraints are limitations on action. They set boundaries on solutions” [21] (p. 198). Constraints, in other words, is somewhat of a terminological catch-all that covers requirements, obstructions, creative choices and numerous other factors that delimit the agent’s creative space of action. During the last two decades, the special role of constraints has spawned a growing scholarly interest as an area of research in design studies, and Chandrasekaran has even argued that: “[f]ormally, all design can be thought of as constraint satisfaction, and one might be tempted to propose global constraint satisfaction as a universal solution for design” (p. 65). [4]. While this claim might be slightly controversial, a number of scholars have explored similarities between art, creativity research and design and have thus proposed the topic of constraint management as a way to help bridge these and related creative disciplines and areas of research interest. Among these proposals are Stacey & Eckert’s [19] idea of a continuum of over-constrained problems (basically engineering and design) with extensive design briefs vs under-constrained problems (essentially artistic creation) where the agent must voluntarily impose constraints on herself to concentrate her solution space.

In continuation of such theory proposals, we see a great potential in investigating the complex role of constraints in art, creativity research and our own primary field of interest, interaction design, as a way to enable a new, prolific cross-pollination in terms of improved conceptual transparency and thus cross-disciplinary theoretical advancements. As demonstrated by Onarheim & Wiltzchnig (2010) in their literature review [16], constraints play a remarkable role as both delimiters and enablers in a creative processes. The constraining function is given by sheer definition as ‘constraint’ derives from the Latin verb ‘constringere’ meaning to: “restrain, compress, bind or press together”[14]. Given this etymology, constraints have been studied in close relation to problem-solving in the tradition of Newell & Simon [18]. What we deem even more interesting, however, is the role of voluntarily chosen constraints, that is, obstructions that the agent freely imposes on herself to stimulate creative productivity. In our view, self-imposed constraints are a rich resource in various creative disciplines, especially art
and interaction design, because, counter-intuitive as it might seem, an agent’s deliberate attempt to trip herself in a creative process is often the very gesture that forces her into a new and narrower design space that calls for new, innovative solutions.

Given the concept’s conceptual spaciousness, current research into constraints is a highly heterogenous aggregate with contributions from philosophy of sports (boxing) [11], literary history [1], engineering [15] and management theory [9], to name a few. So far, three publications can be said to stand out given their effort to contribute to a tentative typology. One is architect and designer Bryan Lawson’s book ‘How Designers Think’ (2006) [10] which contains a cube-like model of what he, based on his extensive experience, sees as the main kinds of constraints in any design process. According to Lawson, constraints are tightly related to the handling of design problems, which means that he does not explore the idea of constraints as voluntarily chosen obstructions. That particular thought is pursued in artist and psychologist Patricia D. Stokes’s book ‘Creativity from Constraints: The Psychology of Breakthrough’ (2006) [20]. Stokes argues that artistic creation is really about solving ‘the creativity problem’, and that creative breakthroughs can be achieved by employing a dichotomic conceptual framing of the problem space, that is, by thinking in opposites and essentially negating key features of the domain of departure to forcefully promote novelty. Although Stokes advocates the idea that an agent can impose a new framing of the problem space on himself, her approach puts strong emphasis on conceiving the creative process in quite rational terms, which renders classic aesthetic questions of inspiration and insights problematic. Furthermore, her hypothesis of breakthrough as breakaway is not easily reconcilable with psychologist Robert Weisberg’s extensive studies of the creation of Picasso’s painting Guernica (1937), where he argues that Picasso does not discard of previous styles or motives, but primarily extends and refines his then idiom [22].

In our view, the most serviceable theorisation of constraints in a cross-disciplinary perspective is philosopher and social scientist Jon Elster’s seminal book ‘Ulysses Unbound’ (2000) [8], where he, in addition to other typological framings, present a tripartition of constraints as either a) intrinsic (basically inherent in the material); b) imposed (from external agents, e.g. in a design brief or a commissioned work of art); and c) self-imposed constraints. Although Elster makes several interesting observations of self-imposed constraints in the domain of art, it is quite surprising that he does not focus more attention on the various avant-garde movements of the 20th century who rejected Romanticism’s idea of divine inspiration and instead explored other ways of evoking and carrying out creative processes. One such example is what we have previously dubbed ‘constrained fabulation’ [2] to denote some of the techniques of Surrealism, for instance Cadavre Exquis from the 1920s based on the party game Conséquences where each participant writes a sentence on piece of paper, folds the paper to hide it, and passes it on to the next participant who does the same until the complete, absurde narrative is read aloud to the amusement of the entire party. Surrealist André Breton used this technique to create fascinating pictorial agglomerates based on a deliberate abandonment of coherence and context as two self-imposed constraints. An example that Elster mentions is the French literary movement Oulipo whose influential member Georges Perec in 1969 wrote the lipogrammatic novel ‘La Disparition’ (literally ,The Disappearance published in English as ‘A Void’) without using the letter ‘e’ [17]. Other, more recent examples of self-imposed constraints in artistic processes
include the Danish film initiative Dogma [13] with its ‘ten ‘commandments’ about lighting, use of music etc., and the Danish film 'The Five Obstructions' (2003) where two Danish elite directors challenge each other on creative aptitude.

Our research lab has been involved in several rewarding interaction design projects of which many have revolved around interactive media façade installations [5] [3] [6]. During these projects, we have observed the importance of approaching and managing constraints with an awareness of their double role as delimiters and enablers. Elster never mentions design, but we would argue that his basic tripartition of intrinsic (in-material), imposed (by external agents, e.g. costs, deadlines etc.) and self-imposed constraints is a highly serviceable platform for cross-disciplinary theorisation in art, creativity research and interaction design. As presented above, self-imposed constraints as a resource for creative productivity is widely used among certain artists and is not an uncommon subject for art historians and philosophers of aesthetics. Currently, it is very scantily explored in design studies. In our projects, however, we have noticed how both artists, designers, engineers and other participants have freely imposed various constraints on themselves to stimulate creativity during the design process. In the tradition of Dorst & Cross’ work on the co-evolution of problem-solution [7], we are planning to further explore the specific impact of self-imposed constraints on the dynamic configuration of the design space during a given design process. We have elsewhere argued for employing four particular analytical framings to highlight key aspects of creativity methods and techniques in interaction design [2], namely tradition vs transcendence, convergence vs divergence, degree of structure and reliance on sources of inspiration. On this backdrop, immediate future work will comprise an exploration of self-imposed constraints as a rich resource in art and interaction design, where the normative element of interactivity, as explicated by Löwgren & Stolterman [12], must be stressed in the research design based on the four framings mentioned above. In our view, such a study based on the combination of solid philosophical analyses, cf. Elster’s inspiring tripartition and related contributions from other scholars, and first-hand experience from several interactive design projects conducted by our lab, for instance the Danish EXPO 2010 Pavillion, could hopefully be a small, but productive step forward toward an improved cross-disciplinary understanding of creative processes and inherent challenges - such as constraints - in both art and interaction design and, possibly, creativity research in general.

(Words: 1434)

References


