Beyond the Individual: the Complex Interplay of Creativity, Synthesis and Rigor in Design Led Research Processes.

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Abstract: This paper sets out to provide insight into the current debate on art, science, and the need for rigor in providing a framework for the interpretation of creativity within design. A literature overview will outline the common concept on creativity processes. The model will be critiqued from various theoretical perspectives. The theory and approaches are then applied to a case study through which the conceptual framework of creativity will unfold. It is, however, not an exhaustive literature review, as the literature chosen is in particular very applicable to the case study in this paper. The paper will represent ongoing research.

Key words: Creativity Theory, Co-Creation, Design, Aikido.

1. Introduction

This paper discusses managing creativity through rigor in the design process. It may appear that the relationship between theorizing and rigor have generally been academic, and when dealing with the design process – and as such creativity – rigor is undermined and lacks importance. Many authors, designers and even managers have considered creativity as the centre of design ideation. It is evident how poorly the notion of rigor is dealt with when considering the creative aspects of the design process. Clichés are often employed when describing the apparent tension between creativity and science. Creativity is regarded as an individual expression and geniality or 'intelligence du coeur', whereas science is perceived as generalization, induction, rationalization and validation. These clichés cause animosity and confusion amongst both parties – and in particular in the field of design. This paper will examine these apparent clichés from an institutional perspective of creativity. Cziksentmihalyi [5], argues that creativity is a process that can enable change in a symbolic context, such as design, and this approach opens up understanding of the participatory aspects of design (and the designer) to an acceptance of the receiving field (field of application of design). We will then outline creativity as a rigorous process not to be perceived as an automatic process of creation – the Aha Erlebnis. Creativity has its foundations in the shared validation of knowledge and experience, and rigor enables articulation and validation of outcomes and outputs through these processes. This notion implies friction with the creative aspects of the design process and therefore this research will adopt the three element construct of creativity; discipline procedural knowledge, field validation, and the actors, using these to investigate the characteristics of design processes – particularly their management within the conceptual framework of rigor and valorization. In closing we will use a case study outlining how creativity can be managed in the design process. Of course there is no guarantee of the quality of design, but it will be beneficial for designers to identify pitfalls, uncover issues and raise concerns which may eventually evolve into the organization of design patterns.

2. Background

2.1 Creativity Theory

Many researchers and scientists have studied creativity, whereas designers and artists have tried to unravel the mysteries of the creative process. The work discussed in this paper supports the notion of creativity management: Guiding "Black Box" theory [13] which states that "even though a system is never completely known, it can be managed effectively". The multi-interpreted phenomenon of creativity is of particular interest within the context of Weisberg's [14] notions on the dynamics of creativity within the context of the goal-oriented process of design. This indexation of the creative process was first articulated by Poincare [8], which became a point of departure for Wallas [12], who also reiterated the indexation of the creative process, not only of an artistic process but also the creative scientific processes. Wallas constructed the creative process on four different stages stages. In the starting phase of *Preparation* the designer is conscious of the assignment, brief or theme that needs to evolve into a creative artefact. The first steps of ideation materialise in a more generic orientation that is more provisional then the later stages. The phase can also be identifed as 'idée directrice'; the problem is being formulated and investigated in the research for, into and through manner as articulated by Frayling [6]. The next phase of *Incubation* is often seen as a resting phase, this is however not the case. This phase is characterised by the simmering of the ideation in the first phase. Unconsciously the ideation process continues and the ideas are sharpened, or following Arieti [1] "sleep on it, letting it cook". The following *Illumination* phase is started by the illumination of an idea or thought. This is the moment in which the solution is transferred from the subconscious into the conscious. This phase is often seen as the mystification of the creative process, though it should be seen as another sequence in the creation process which could not have happened without the design research that is more apparent in the first phase. The last phase of *Verification* is a logical follow up to verifying the illumination; in particular within the applied context of design. The ideation needs to be verified according to its contextual factors, such as target group, objectives and so on. This phase is characterised by the further development and generation of the idea into an artefact. According to Wallas these phases overlap each other, and in particular the reflective practitioner that designers embody is by its nature recursive and not linear. This is confirmed by the Sternberg's research [10], which states that any level might be accessed at any point, simultaneously or by turns, and on more than one occasion. At this point we return to the opening argument of this paper – managing creativity through rigor in the design process. This implies a need to look more rigorously at the model of Wallas's' as this model is often used as the point of departure for creativity studies and analyses.

2.2 Rigor in using the creativity model of Wallas (1926)

The Wallas model can be a useful point of departure, however, for any thorough and rigorous continuation of this analysis we need to study the model further. Of concern is that fact that Wallas' studies creativity on the level of individual action and this is not applicable in terms of this study. Design in the context of this paper is seen as an inter-disciplinary activity of collective ideation. The dynamics of social interaction make it almost impossible to solely use Wallas' model. We acknowledge that in the collective design process individual ideation is present as well but to solely use Wallas' model is to risk over simplifying a complex process.

This paper therefore explores research which has expanded on Wallas' model in an effort to provide more depth. Pope [9] defined a phase leading into Wallas' phase of preparation; starting with *sensation* – the vague idea of a problem. This does not conform to the romantic depictions of artists, but can be understood in terms of the research of Hayes and Flower [7] who point out that the rigor of sensation can be derived from the three key categorical indexations of a creative process: long term memory, design activities, and the actual process of

doing design. According to Zeder and Hancock [15], before entering the preparation stage the design (or artist) begins to realize what is to be articulated: problem definition and articulation. This realisation will lead into preparation, which is then followed by *saturation* [15]; mainly focusing on collection of material necessary to prepare for the design of the artefact. Vanosmael and de Bruijn [11] have studied the Wallas model thoroughly and have identified a frustration phase prior to incubation; frustration creates subjective distance exerting its pragmatic influence on rigor as the objective stance in the design process. The process leads into incubation and evolves into the intuition, which is compatible with Wallas' phase of illumination. Even though Wallas emphasized the ungraspable aspects of the creative process in this phase, Arieti [1] claims that "(Illumination is) ... seeing inductive similarities to other processes or systems which could work ...". Cziksentmihalyi [5] warns that after illumination, but before moving to verification, the designer will always evaluate the outcomes of the illumination before verifying its applicability. This phase enables the designer to use their own experience as well as drawing on the differentiated research approaches as articulated by Frayling [6]. Christophe [3] recognized through both his own practice as a playwright and dramaturge, and that of his students that the last phase of Wallas' model is not the true last phase of a creative process. Acceleration is needed before moving on from the cognitively focused creative process to the actual generative phase of production in the design process. The main concern is the linearity of the Wallas model, even though it can be seen as a cyclic process. Cziksentmihalyi [5] argues that creativity is a process that can enable change in a symbolic context and this approach opens up understanding of the participatory aspects of design (and the designer) to an acceptance of the receiving field (field of application of design). The expansion on Wallas' model has been exercised to outline creativity as a rigorous process, and not just an automatic process of creation – the Aha Erlebnis. Creativity has its foundations in the shared validation of knowledge and experience, and rigor enables articulation and validation of outcomes and outputs through these processes.

3. Method: Case Study: Black Belt in Creativity

This case study explores creativity as a rigorous process – focusing on 'how' we think instead of purely 'what' we think, as design leaders in an ever-changing design environment. The research [2] investigates how designers can potentially 'manage' their thinking within the ideation process through researching the rigorous practices involved in other creative "ways" such as the Japanese martial art of 'Aikido'. The conceptual possibilities of extending Aikido theory beyond the conventional 'dojo' setting are considered as a means of developing a systematic methodology for thinking about 'co-creative movement' as a specific form of flow [5] – enabling knowledge exchange. The emerging cross-disciplinary co-creative context means designers need to rethink old approaches and learn new process skills. The dynamic tension between chaos and order often involved in the idea generation phase of a co-creative process suits a multidisciplinary mind that can view problems from a variety of angles. Aikido is centered on relationships, collaboration and conflict resolution, incorporating the freedom to adapt, improvise and 'make things up' through movement practices which are circular, spiral and semi-spiral 'blending' and 'entering'. In Ueshiba's opinion [2], Aikido's secret is how you move your mind, not your feet, and this centers on exploring how we each move through the world and interact with others – a 'common center' – as a way of being in the world. Beyond the individual, design leaders need new process leadership skills in order to collaborate with others in inter-relational cross-disciplinary creative practice – processes of 'extension' – and models of coordination for moving and facilitating the efficient communication of memes within co-creative environments. Aikido is flexible, adaptable, and advances new kinds of response – an embodied theory of creative action. It offers a framework for understanding creative processes; both formal and

informal. Aikido integrates mind-body learning and new kinds of experience for reflecting on how we think and act as design leaders. It embodies the two aspects of the creative process: the so-called 'co-creative movement' and it conveys that leadership within a context can provide rigor in unraveling, adapting, and advancing new responses to situations. This concept supports the foundations laid by Wallas in previous sections of this paper.

4. Conclusion

The next step is to look into the philosophical research of Churchman [4]. In his research he elaborates on the foundations of inquiring systems, hence the system for rigorous research. He proposes design as a means of inquiring and therefore systematically creating and exchanging knowledge through the validating system of inquiry. The rigor of the creative design process is in knowing the method of identifying the creative act. Even though we can not set up the creative design process beforehand as a fully clinical experiment, we can, through reflection, analyze it. How do we analyze, and which inquiry system do we use in order to articulate and validate the knowledge created through inquiry?

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