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Design thinking as a disruptive discourse. Embracing conflict as a creative factor.

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Abstract— **The design discipline is nowadays extending its boundaries, becoming more than a profession, a way of thinking and a problem solving approach. This process implies bringing together multiple models of reasoning, modalities of practice and divergent perspectives. A large amount of literature has been dedicated to the adoption of design thinking in other disciplines [1] [2] [3], and to its successfully application in business practices [4]. However, less attention has been put on the contrasts and frictions provoked by the designerly system of thinking. Before understanding and accepting an approach specific to the design profession, as a valid and reliable working principle, the confrontation between the different actors in a multidisciplinary team has to pass through a conflictual phase [5] [6]. Taking into consideration a series of experiences that involve multidisciplinary teams, the next paper concentrates on the conflict as a powerful and essential step in the creative process. In this sense the conflict management will be presented in terms of understanding the root of the contrasts, proposing that rather than leveling the differences, through mitigation, the conflictual, moment has to be exploited as an important step in the working process[7].**

The main question asked in the paper is: what if design could be used as a provoking factor, in order to create entropy and induce, more creative problem solving approaches?

The paper will unfold in several parts: first the design thinking approach will be explained. The second part will stress out the increasing ethnic and disciplinary diversity of the workgroups and the benefits of the differences. In the third part the critical moments in the project management flow will be underlined. The discussion will show different methods to channel conflict towards a creative change in the reasoning system introducing design as a creative element. We will conclude by proposing a different way of looking at the design thinking, emphasizing its potential as a disruptive discourse in the context of multidisciplinary working teams.

Keywords— design thinking, team management, disruptive design, task conflict

I. INTRODUCTION. DESIGN THINKING

The design practice offers a wide range of opportunities for engaging a research inquiry. Although relatively new and in an ongoing change, the strategies employed in the design research have been already outlined and examined in several occasions. Designedly ways of knowing [8] trigger designedly ways of researching [9] or, in other words the specific manner in which designers craft their toolboxes for deciphering the knowledge created in the process of designing, by designers, and/or the other participants in the design project. An extended body of literatures concentrates on the study of the individual heuristics in the work of junior and expert designers [10] and their capability of balancing and reformulating the brief. It was shown how this critical analysis of the brief helped a better definition of the ill-defined or wicked problems and the consequent solution generation [11]. To contrast this perspective, the present paper starts from the premise that a designer is always surrounded by a network of experts and stakeholders with which she or he has to interact in an ongoing negotiation. Seen from this perspective the design process is not simply a protocol that has to be followed but a series of actions that respect an initial planning, an activity that encounters modifications according to the incoming flow of information, unpredicted actions taken by the participants, or unexpected events. Rather than looking at leveling the conflicts coming from diverse perspectives through compromises, the paper proposes an alternative view on the divergences, emphasizing their creative potential.

II. MULTIDISCIPLINARY DESIGN TEAMS

A. Diversity in design teams

Nowadays the design practitioners are confronted with more and more complex requirements that ask for innovative approaches in tackling the constraints of the project. The almost unrestricted access to information provided by the digital technologies, combined with the overwhelming abundance of consumer products and services, have a strong influence on the expectations of the potential clients. In the same time the capability of the design firms to mobilize and connect large networks of expert advisors pushes the boundaries of innovation with every project. The design requirements in this case become almost like a hypothesis, in which, as Tim Brown explains:

> … the project brief is not a set of instructions or an attempt to answer the question before it has posed. Rather, a well-constructed brief will allow for serendipity, unpredictability, and the capricious whims of fate, for that in creative realm from which breakthrough ideas emerge. If you already know what you are after, there is usually not much point in looking. [12]

This definition could be inspiring for the working designers, but also implies certain qualities of the team members either than their trained expertise and experience in

dealing with a certain aspect of the project. More important "the creative realm from which breakthrough ideas can emerge" has to be firstly suggested by the brief, but in a second instance constructed through collaboration. If companies and organizations set-up very high standards of innovation expressed in the hypothesis of the design project, what would be the right recipe for a successful design team? Given the complexity of the brief, that requires problem setting and solving and the accurate prediction of the end user behavior, the diversity of the design team could bring benefits to the end result of the project [13]. By acknowledging the differences, the identification of the creative aspect of conflict could trigger breakthrough ideas. While the activation of the innovative potentials of diversity could only emerge in the presence of a common ground of discussion that is socially constructed and shared, the novelty of the ideas comes from the contrasting perspectives and the transfer of skills and perspectives in different disciplinary contexts.

B. From personal to collective action

The heterogeneous characteristic of the project teams in architecture and design are nowadays a frequent reality that tends to expand for several reasons. Firstly the phenomenon of globalization extends the area of action of the professional design studios, increasing the necessity to maintain a dialog across the disciplinary and geographical boundaries. Secondly the technological complexity and the systemic essence of the design interventions and solutions, demand the creative collaboration of diverse professional figures, with different logical perspectives, priorities, languages and communication tools. As Meurer stresses out, this kind of action:

> …is tied in with interests and, as such, it is characterized by ambivalence, a propensity for conflict and ambiguity. Action is a communicative process. It takes place through motion: through intellectual motion, the motion of people, and through the motion and reshaping of knowledge, substances, things, and data. [14]

All individuals take action each in a particular manner that has to be synchronized. For this reason it is necessary to establish an order of constructive dialectics that will enable a rich and qualified exchange. The dialog and conversation have to prevail the debate, and the double stance of listener and answerer, has to be considered by all participants in the conversation. Rather than depending on the individual skills, the quality of the end result relies on the ability of the team members to find the right balance in the dynamics of sharing the various contributions.

C. Breakdown and breakthrough ideas

The achievement or failure of a state of balanced dialog stays primarily in the language employed in the negotiation and the meaning conveyed by this language. It is through (verbal) language that the communication problems come to surface underlining the cultural differences, and most important shaping the awareness about each participant's diversity [15].

Given the outcome oriented nature of the discipline, for the design practitioner the first step is the conscious acknowledgement of the potential of the tacit knowledge that can trigger the discoveries of unbeaten paths, by first pinpointing relevant problems for then proposing solutions. Taking these considerations into the midst of the conceptual phase of the design project involving heterogeneous groups, the question emerging is how to create a wireframe that will relate the multiple coordinates of the design activity. As Polany explains, "if all knowledge is explicit, or capable of being clearly stated, then we cannot know a problem or look for its solution. …if problems nevertheless exist and discoveries can be made by solving them, we can know things, and the important things that we cannot tell " [16]. In the context of a design team the language leads to actions and productions, in which frictions coming from the contrasts between individuals generate breakdowns; in other words short-circuits that could be interpreted either positive or negative [17]. The question is how designers can sense the opportunity emerging from breakdowns and, perhaps most important, if this kind of disruptions could be consciously generated, in the case of a stagnating workflow.

III. CREATIVE DIVERGENCES

A. Is consensus beneficial?

While breakdowns could be beneficial during the work process, they also have a strong psychological impact on the team creating divergences. In order to understand the creative potential of the breakdowns it is important to look at the design process as a structured activity whose goals have to be achieved in several steps [18]. In this sense in order to complete a design brief the, the working process follows a hierarchy (fig.1).

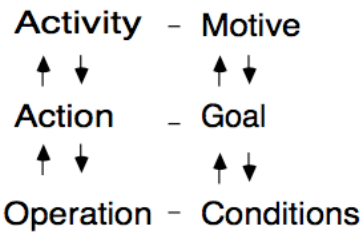

Fig. 1. Hierarchical level of activities (Kuutti, 1995)

Here it is important to underline the cyclic development of the activity that passes through a continuous definition of the actions and tasks triggering a change in the operating conditions. Considering an initial the consensus on the type of activity to perform and the motive of that activity, the divergences are expected to occur at the second level of activity and are related to the differences in the cognitive perspectives, in other words to the meaning and value attached to the task to be performed. This phenomenon is widely known as task conflict and has been thought to increase the creativity of the group [19]. The dissent generates doubt and challenges the status quo and comes from a minority, in this way forcing the group to accept the re-evaluation of the actions considering alternative processes [20]. In the case of the design team that seeks innovative solutions, the role of the design professional is to pose these challenges expressing them through alternative multimedia languages and therefore externalizing the potential of the differences.

IV. MANAGING DISSENT. A WORKING EXAMPLE

In order to illustrate the creative potential of conflict and dissent, the following chapter shows the working experience of a heterogeneous group working for a design project [21]. The group included mixed disciplinary background of the team members as belonging to interaction design, management, environmental sustainability studies, graphic design, performance arts, media communication and business

management, and the experiment took place in the master degree program offered by a Canadian higher education institution[1]. This complex disciplinary appurtenance was doubled by the cultural belonging, which increased the complexity of the social mixture in the team[2]. The shared language and social conventions made the communication among the team members possible. The situation of the design project and the particular quality of the brief, dealing with the perception of the social issues in the city system, and the modalities to meaningfully communicate them, brought to surface the deeper and less visible differences of the members. Because of their highly conceptual nature, the brainstorm sessions were the moments in which the different perspectives triggered individual framing [22] of problems, giving them different meanings and values. At this point it is necessary to define three modalities involved in the brainstorm process. First of all the warm up and approach to the brief was managed through verbal conversation, in a second instance, when the brief appeared more clearly identified for the members, the team agreed on designating one of the members to write several lists of parameters that will help the definition and organization of the attributes related to the concept. This process proved to be particularly time consuming for the team members, who in the effort to avoid conflicts encountered difficulties in reaching a decision with respect to the validity of the content generated. The assignment imposed by the faculty members was at that moment particularly important because asked for the visualization of intermediary ideas and the division of the team of eight in four teams of two people. Shortly before the assignment the group encountered a low energy level that favored the emergence of affective dissensions. At that point the intervention of a short sketching exercise gave space to the expression of individual views on the project.

The observation of the working flow and the behavior of the team unveiled a sequence of actions performed by the team such as:

- Conversation–sessions, in which verbal language prevailed, intended to reach an initial understanding

- Gestures – expressing consent or disagreement regarding the argument discussed

- Lists – individual and collective notes containing written information about the attributes and constraints of the brief

- Drawings – graphic annotations

Although the same typology of actions was observed and studied in different workgroups [23] (Tang & Leifer, 1998) the particularity of the above-mentioned workgroup was a lack of visual representations and the preference given to written and spoken language. In other words the actions intended to reach the goal were delayed by the commitment to compromise. Looking at the activity levels model the experience indicates the exact point of conscious conflict intervention that can trigger the innovative outcome (fig. 2)

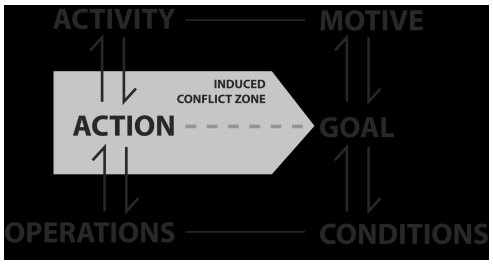

Fig. 2. A temporary induced conflict zone in the activity flow

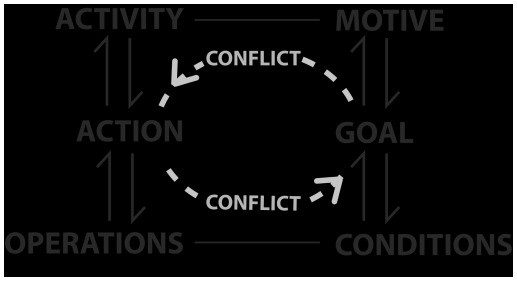

Fig. 3. The revised action-goal cycle generated by conflict / disruption

At this point it is important to show the emotional and affective impact that the divergences create in the team. It is enough to envision a working scenario to understand the temporal limits of the activity and the pressure to meet the deadlines. For this reason the conflict has to be understood as a limited resource that can guide the team towards more innovative solutions but has to end in the final phases of the project. For this reason the effort of conflict negotiation could lead to innovative solutions only when they generate an important work output [23]. The effort of integrating conflicting perspectives enriches both the personal development and the group performance [24] and is therefore beneficial when seen from developmental perspective.

V. DISRUPTION AND LEADERSHIP

Although the example presented referred to a small group in an academic setting several issues have been underlined. Firstly the design thinking should catalyze the conflict rather than moderating it. This implies the introduction of unusual even utopian perspectives that generate a breakthrough in the stagnating creativity. Secondly the actions engaged have an important impact on the social configuration of the group that tends to temporary re-configure following a hierarchical model. In this situation the role of creative leader emerges, proposes an exercise of power and control over the activity flow. Thirdly the leadership has to be understood as a role that consciously challenges old schemes adapting to rapidly changing situations.

This contrasts with the traditional scheme of leadership [25] that places a clear outcome as the end goal of the process and underlines the innovation within the process, supported by strong social interaction ties [26] (Lynn & Reilly, 2002)

[1]Institute Without Boundaries at George Brown College, Toronto Canada

[2] 9 students – 4 women , 5 men, from Saudi Arabia, UK, Mexico, and Canada

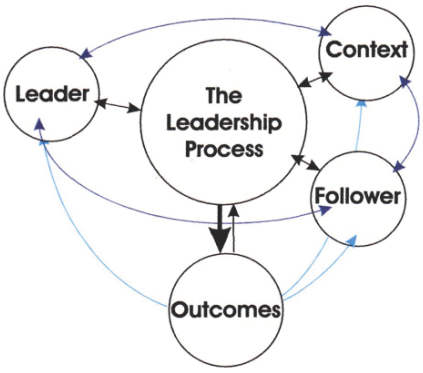

Fig. 4. The leadership process (Dunham & Pierce, 1989)

In this case the concept of generative leaders [27] fits the profile of design professional trained to adapt and improvise innovative solutions in a variety of disciplinary domains. As Mumford suggested one of the main ingredients of the successful leaders in the present globalized agencies is the creative thinking skills that enable envisioning a multitude of innovative ideas and the outcome of their application [28]. All the above suggest a new way to look at the design expertise and re-define the design-thinking process, as creatively disruptive rather than emphasizing mitigation and consensus. The role of the designer is a central one, given by the multidisciplinary expertise and creative thinking in ambiguous situations.

VI. Conclusion

Traditionally the design education emphasizes the technical expertise preparing young practitioners to operate in a multitude of disciplinary environments. This type of basic skills are however extended through practice into the necessity to adapt to a changing environment that favors the flexibility of thought and the extension of the creative capabilities from their merely practical application to a global understanding of complex systems. Moving from the already acknowledged design thinking expertise presents the designer as a mediator and innovator in small and large scale teams and organizations, we propose an alternative perception of the designer's role. Starting from the leadership process model proposed by Dunham & Pierce, we introduce the design input as creating a conflict situation, in which the term is intended in its etymology: *conflictus* – a contest of contrasting perspectives.

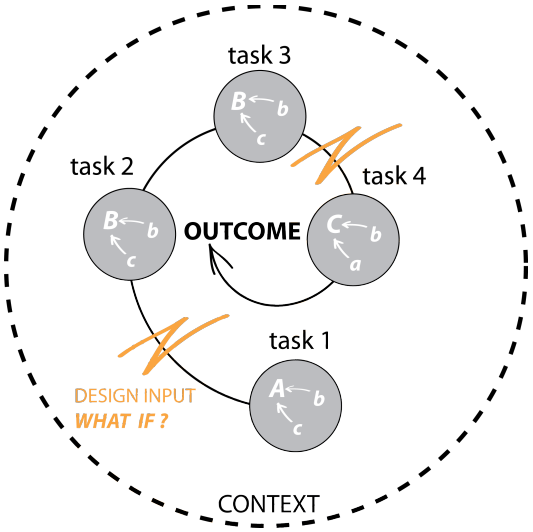

Fig. 5. Fig. 5 Design input into the leadership process

In this case the task cycle in the creative process is boosted by the disruptive input. This type of intervention is particularly relevant in the presence of uncertainty in decision making creating the necessary entropy that cam generate a change in the line of thought in the mean time inducing a new dominance balance in the work group.

If so far the role of the designer was outlined as a member of democratic teams, the paper emphasized the role of creative disruption and dissent brought by the designer's expertise. Rather than leveling the differences in heterogeneous groups the impact of the design thinking has to be seen as opening controversy and debate. From there emerges a new type of group organization that has to be managed by a creative, generative leader that can assume unpredicted, ambiguous outcomes. What we suggest is not that designers are intrinsically apt to fulfill this role, but rather that the education and life learning expertise gives them the potential to access high organizational positions, that haven't been envisioned in precedent.

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