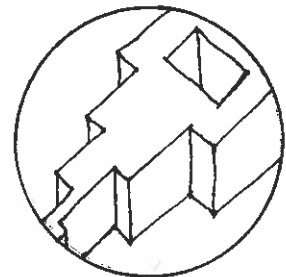
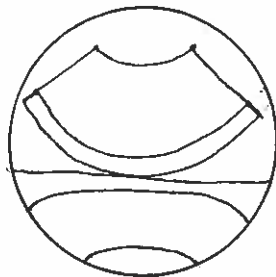
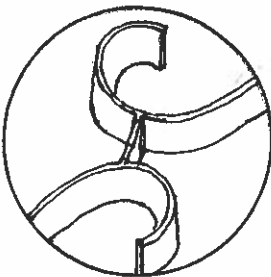


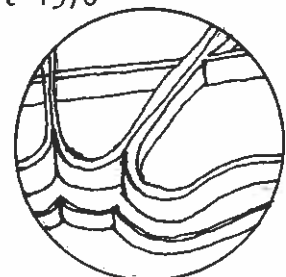
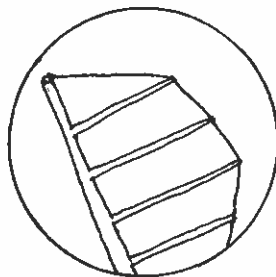
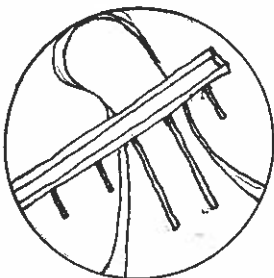
TOWARDS CREATIVITY IN THE DESIGN PROCES

BASIL BRINK



TH Delft, Afdeling der Bouwkunde Vakgroep 12: Ontwerpmethodieken.

maart 1978



Towards creativity in the design process

Introduction

In this paper it is proposed to take a closer look, albeit brief, at the role that creativity plays in the design process, and to establish whether creativity is considered an essential ingredient in the design process. Acknowledgement is due at the outset to the writings of Richard Foqué (1975) on which the greater part of this paper is based.

What is design?

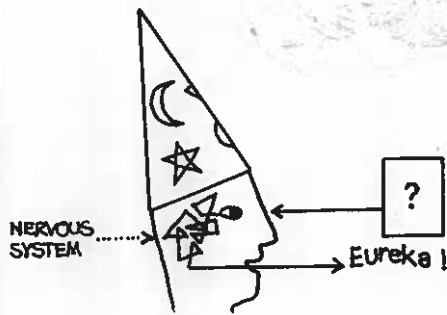
In seeking for a definition of the word 'design', it is necessary to point out that there appear to be as many definitions as there are designers; as the following survey of definitions of design indicates:

'Finding the right physical components of a physical structure.'
(Alexander, 1964)
'The production of conceptual structures.' (O'Doherty, 1963)
'Decision making, in the face of uncertainty, with high penalties for error.' (Asimov, 1962)
'The optimum solution to the sum of the true needs of a particular set of circumstances.' (Matchett, 1963)
'Relating product with situation to give satisfaction.' en 'Fundamental is the building up of a structure, pattern or system within a situation.'
(Gregory, 1966)
'The-imaginating jump from present facts to future-possibilities.'
(Page, 1966)
'A creative activity - it involves bringing into being something new and useful that has not existed previously.' (Reswick, 1965)
'The process of selectively applying the total spectrum of science and technology to the attainment of an end result which serves a valuable purpose.' (McCrorry, 1966)
'In essence, it is this human power of imagining something that did not exist before that is termed design.' (Harvey, 1950)
'Simulating what we want to make (or do) before we make (or do) it as many times as may be necessary to feel confident in the final result.'
(Booker, 1964)
'The process of design is the translation of information in the form of requirements, constraints and experience into potential solutions, which are considered by the designer to meet required performance characteristics.' (Luckmann, 1969)

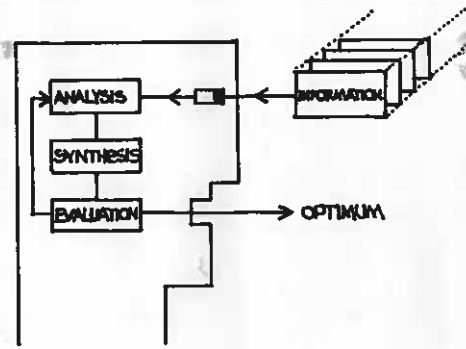
DEFINITIONS OF DESIGN

FROM FOQUÉ 75

It is obvious that so many differing opinions form an obstacle to the establishing of an uniform design terminology, as has been attempted by designers such as Alexander, Jones and Broadbent in order to clarify the meaning of the word and explain their own design process as a way of justifying that chosen process.



DESIGNER AS A MAGICIAN



DESIGNER AS A COMPUTER (FROM JONES 1973)

In illustration 1 from Jones (73) two extremely different designers are portrayed. The designer-as-magician solves a problem he is faced with by means of his intuition, whereas the designer-as-computer rationally analyses, synthesises and evaluates information, thereby producing a justifiable, optimum solution.

Drewe (75) maintains that an often unstated design-method feud exists between the traditional architectural designers (proponents of "intuition" and "creativity") on the one hand, and the empirical researchers and more systematic designers (proponents of rational design) on the other.

What is creativity?

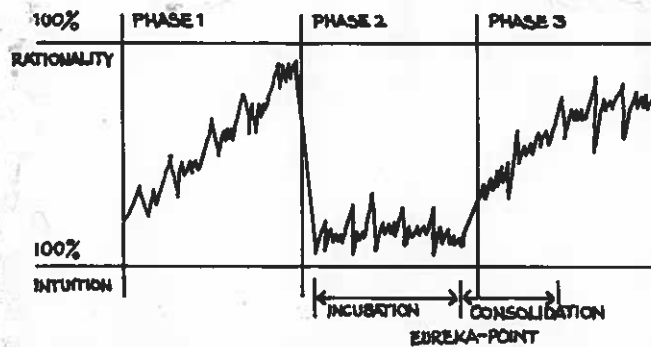
In attempting to define what is meant by creativity, it would appear that the following concepts play a key role: intuition - newness - idea - alternative - relating the seemingly unrelated - and lastly possibly a bath, as this was where Euripides discovered the principle of water displacement, resulting in his running through the streets shouting, "Eureka".

Frivolity aside - a parallel between the thinking mechanism and the creative process has been indicated by de Bono (1969). He defines strategic or lateral thinking as: "The activity which is concerned with the choice of the most appropriate steps out of a multitude of possible steps. The search is not for a definitive solution but for a policy of behaviour that is more effective than others".

Zangwill (1966) distinguishes between two types of thinking activity...." in convergent (linear) thinking, the aim is to discover the one right answer to the problem set. It is highly directed, essentially logical thinking of the kind required in science or mathematics.....In divergent (lateral) thinking, on the other hand, the aim is to produce a large number of possible answers, none of which is necessarily more correct than the others, though some may be more original".

According to Faludi (1975) creativity is a result of the combination of these two thinking activities - a creative person being one who can switch with comparative ease from convergent to divergent thinking and vice versa.

McKinnon (1970) defines the creative person as: "The one who reconciles in his intellectual endeavours the opposites of expert knowledge and the childlike wonder of naïve and fresh perception".



SCHEMATIC REPRESENTATION OF THE CREATIVE PROCES (FROM FOUQUÉ, 1975)

Illustration 2 from Fouqué (1975) provides a schematic representation of the creative proces based on previous analysis. The thinking opposites of convergent, linear, rational, "expert knowledge" on the one hand, and divergent, lateral, intuitive and "fresh perception" on the other are graphically related in three phases of the creative proces, defined as follows:

- Phase 1 - a directed search for solutions, based on a thorough knowledge of the problem. The thinking proces takes place mainly at the rational level and taxes its (intelligence) capacity to the full.
- Phase 2 - Mental 'incubation', which terminates in a moment of recognition - the Eureka-point. Intuition and creativity are fully taxed in this phase, at times in this phase, at times unconsciously.
- Phase 3 - Realisation, testing, verification and application in which consolidation occurs of a firm intuitive-rational relationship.

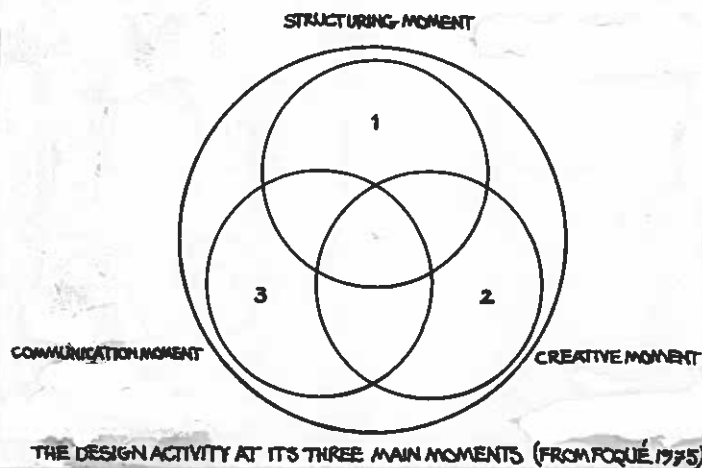
Guilford (1959) adds a new dimension to creativity, which he sees as being equal to divergent thinking, when he says that effective functioning of creativity is determined by the system of values and norms in which the creativity occurs.

This is borne out by Rogers (1961) who states that there are no criteria for the evaluation of something "new" (for instance a discovery by a researcher or scientist) which occurs in a specific social context. In the past a discovery or creative act has more often than not met with opposition or antagonism - the "newer" and more original the discovery, the greater the opposition and antagonism to it. This is verified historically by for instance, the opposition to the ideas of Galileo Galilei, which were "painful" truths to those who had believed the contrary.

Another more recent example is described at length in A. Koestler's "The Case of the Midwife Toad", in which a scientist commits suicide as a last desperate act, following scepticism and criticism of his scientific findings by other scientists.

To counter such negative reactions to creative thinking, Rogers suggests "constructive creativity" which includes the following:

1. A willingness to accept new experiences
2. Internal evaluation of the created product by the creator, and not in terms of external criticism levelled at the product.
3. Skill in playing with ideas and concepts.



The place of the creative moment in the design activity, is indicated in illustration 3. The creative moment is defined by Fouqué (1975) as the "motive" moment when the dividing zones between rationality and intuition fade and merge into a new, liberating synthesis. Structuring activities may occur simultaneously with the creative moment; both moments therefore being complementary poles in the design proces.

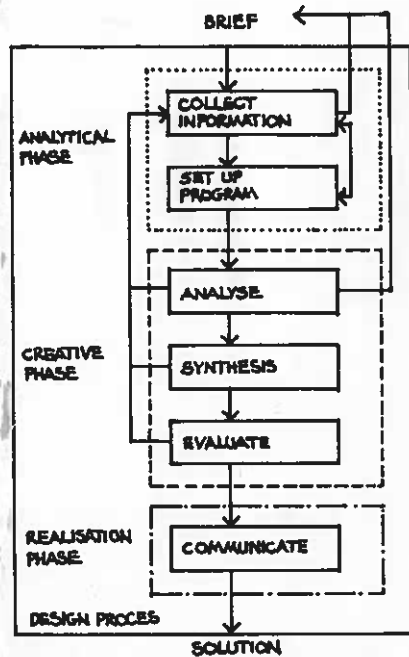
Fouqué maintains that the basis of the creative moment in design consists of a double polarity, a constant interaction between rationality and intuitive thinking on the one hand, and between the context and internal evaluation (i.e. constructive creativity, postulated by Rogers) on the other.

This review of what creativity is, the creative forces and the creative moment leads to the role that creativity plays in the design proces.

The role of creativity in the design proces.

Drewe (1975) maintains that a gap exists between the understanding of the present and the past on the one hand (analysis) and the finding of (alternative) situations in the future (synthesis). This results in the need for a creative leap to bridge the gap and may be achieved by creativity aids, such as synectics (Gordon) and/or brainstorming.

Archer (1963,64) bears out the need for a creative phase in the design proces, as may be seen in the illustration.



SCHEME OF ANALYSIS-CREATIVE-REALISATION PHASE MODEL OF ARCHER (FROM FOQUÉ 1975)

He extends the analysis, synthesis, evaluation rational design proces into a new three phase model, (illustration 4) in which an analytical, creative and realisation phase is taken up. The analytical phase consists of the establishing of a program based on the brief. The creative phase consists of analysis of the previous phase into part-solutions; synthesis of part-solutions into total solutions; evaluation and development of total solutions into the final chosen solution. The realisation phase requires communication - a logical presentation in the most suited medium of the previous phases.

Remarks and Conclusions

1. If there seems to be little agreement about what design is on the one hand, there seems to be almost unanimity about what creativity is on the other (Faludi, de Bono, Foqué).
2. Creativity forms an essential building block in the design proces. This may be concluded from the important role given to creativity by designers-Archer, Faludi, Foqué, for example.
3. It is hoped that this paper has clarified the importance and essentiality of creativity by indicating what creativity is, and the kind of contribution it makes in the design proces.

The foregoing part of this paper was a brief review of the state of the Art, as regards creativity and the role it fulfills in the design process. Following on this it is intended to give a few personal views of the fostering of creativity in the design process with reference to town planning.

Design in town planning occurs at a macro, meso or micro level/scale. At the micro and also the meso level the town planner is confronted with problems of existing or to be realised settlement structures such as a cluster of houses, a suburb with its streets, parks, shops, community centres or the inner city for example. At the macro level the problems may range from relationships between cities and preservation of ecologically stable natural zones to problems that 20th century man is experiencing in this emerging global city.

It is apparent that the town planner may be occupied with almost anything and everything affecting the built environment, and to be able to arrive at alternative futures for the environment the planner has to rely on various aids to stimulate his creativity whilst planning and subsequently to communicate to others what he has planned. I have distinguished two types of planning aid - the thinking and the doing aid.

Thinking aids may either be stimuli in the form of relevant information input, e.g. comparative planning studies, precedent, information gleaned from participation, feedback or idea output aids such as brain storming think tanks, and less directly an integrated mode of working, where the planner is constantly in touch with other planners whilst planning. The planner has to be kept on the qui vive by being constantly challenged on his intentions.

Precedent has been mentioned as an important input stimulus and to it should be added the history of the development of settlements, villages, and cities, be it of this century or several centuries ago, when the path of the pack-donkey determined the placing and layout of tracks, roads and villages for instance. The richness of time has been stilled in the stone of many villages, towns, and cities which are still existing today as a valuable lesson to the town planner.

A political element is present in a town plan, as many people's happiness, well-being and social status may be adversely, or advantageously, affected by the planner's lines on paper, tables and graphs. Participation in the planning process, especially during the decision making process, is advantageous both to the planner and the people whose lives are to be affected by the plan.

The planner's creativity is stimulated when his plans come under scrutiny and criticism and the affected people have a say in their environment, which fosters feelings of responsibility and identity to the intended environment. Besides being an important thinking aid to the planner in the form of feedback, participation helps to reduce and hopefully eliminate the incongruence between man and his built environment. The gap between what the planner wants (when employed by an authority, for instance) and what the people want may be lessened by the use of participation.

Doing aids may include models, two or three dimensional conceptual diagrams, sketches, drawings, film, slide, and computer. A doing aid may be aid to be of greater use if it is flexible in itself and easily adaptable to a changing or changed input or idea. A quick model made of paper strips which are easily demountable; a free-hand sketch or quick perspective; wooden or balsa blocks cut to specific scale are all examples of doing aids which are solely intended to aid the planner in seeing what he is thinking, and enabling others to see it as well. These doing aids are not intended for presentation or "hard-sell" to clients, but make use of inexpensive materials which encourage a dynamic, creative and flexible attitude whilst planning.

The planner has to select the best mode of communication of his intentions when they have been decided on. Ideas have to be communicated using plans, pictures, models, films or slides so that they are clear to the client, partner or authority. Clear communication in itself stimulates creativity as it becomes possible to understand at once what is planned, and reactions to the proposal are bound to have greater relevance and meaning.

In town planning the personal point of view of the planner is important, as this will influence his values and selection of criteria by which to evaluate information. This point of view should be dependable and it is therefore important that the planner makes use of a logically thought out and rationally based design process, so as to avoid the many pitfalls on the road to the establishing of the best alternatives.

Besides having his own particular point of view, a planner may also be filled with a particular spirit, an inspirational vision which may determine the concept and content of his design.

This vision may be described as joyful, poetic, thought which is not limited in any way - it is here that the output is magical, and this is difficult to describe and justify rationally. In evaluating a proposal, the planner's vision, his opinion of Utopia, should be clearly visible and distinguishable from lines on paper or blocks of wood on a board. Once a design is finally realised, the planner can glean valuable information from it, such as whether people use spaces as intended, are they comfortable and happy, are there negative effects, such as vandalism and crime, and so on. In this way experience may become a valuable input and a thinking as well as doing aid in future still to be tackled projects.

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