Creativity in Architecture and Management

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Abstract: The purpose of this paper is to explore the importance of creativity in architecture as well as management. This research focuses on the nature of creativity, theories about creativity, and recognized understandings concerning the development and utilization of creativity. This is especially important as rewarding creativity in the workplace helps to increase productivity and, therefore, profits as well. It is of critical importance, therefore, to adequately reward creative managers, businessmen, architects and all of those individuals who are in a position to contribute novel and creative ideas that can be highly useful when implemented by the organization concerned. While the encouragement and rewarding of creativity is very important in all fields, it is especially important in the field of architectural development, which is our focus here.

Key words: Importance of Creativity and Management

1. Introduction

Architecture is the art and technique of designing the enclosure of space for human use, as distinguished from skills associated with construction. As with some other arts, the development and practice of architecture embraces both aesthetic and utilitarian ends; these ends may be distinguished from each other but not separated completely, furthermore, the relative weight given to each end, purpose, or motif, may vary widely from one architectural project or work of art to another. It is especially important to recognize the way in which architecture is a social art, both with respect to method purpose. Successful architectural endeavors are almost always the result of team work and the purpose of architecture is almost always the service of some group, however large or small, ranging from a family to an entire nation. Architecture is usually a costly act, however, especially insofar as it represents a form of art and a representation or celebration of public space. Creative and highly sophisticated state-of-the-art architectural projects call for the engagement of the most specialized talent and highest form of technological achievement available.
The initial and still central purpose of architecture is to modify the physical environment so that certain human activities can be carried out conveniently and in a dignified and comfortable fashion. It is clear, therefore, that architectural design can never be a completely automated decision. It is even questionable the extent to which design in any field can ever be fully automated, at least in any fully creative sense, since creativity as we have always known it requires a certain dose of authentically human rather than automated production. Nevertheless, there are those who seek creative expression through fully automated means, something which takes us somewhat afield of our central focus here on the relevance of human creativity for architectural accomplishment.

All of this is not to say, however, that creativity and technology are at all at odds. Rather, they can be quite compatible, each serving to enhance the other. A broad range of new and powerful technological advances have become available to designers in a host of fields, such as ergonomics, operational research, systems analysis, information theory, and various other disciplines, especially those that are heavily dependent on the extensive use of computers for many of their applications. Enormously potent tools are now available for decision making, especially when one has access to data of high quality in quantifiable form, providing avenues of scientific advancement that are revolutionizing the process of design in our technology driven world of today. The atomic bomb, undersea housing, and manned lunar vehicles are but a few of the pinnacles of technical achievement that have marked the last few decades. These kinds of watershed advancements, while perhaps somewhat less dramatic, have also taken place in the field of architecture.

Architects, irrespective of their level of creativity, share in common the fact that there are certain things that they must do. They must receive instructions from the client as to what the structure will be used for; they also must observe and survey the site, noting its shape, contour, and texture. All architects must also make an assessment of what resources are available and decide how they can best be utilized or deployed. Therefore, the architect must be capable of thinking, feeling, evaluating, and arriving at critical decisions in the following ways:[1]

1. Rational (about the nature of the site, the available resources, and so on);
2. Intuitive or creative (about how these results of rational thinking might serve to inspire the building form),
3. Value judgment (as to the relative importance of these various and sometimes conflicting factors—forming priorities according to a combination of professional principles, creative inspiration, and realistic limitations).
4. The ability to convey spatial ideas, so as to make the architect’s intentions or vision available to be shared with others, most importantly clients.

General communication and negotiation skills required to make any project a success, as all projects occur in a social context.

2. Creativity

Creativity is often thought of as the ability to generate ideas that are both innovative and functional.\(^2\) Donald MacKinnon, for example, suggests that “creativeness” fulfills at least three essential conditions:

- It involves a response or an idea that is novel or at the very least statistically infrequent. But novelty or originality of thought or action, while a necessary aspect of creativity, is not sufficient. If a response is to lay claim to being part of the creative process, it must to some extent be adaptive to, or of reality. It must serve to solve a problem, fit a situation, or accomplish some recognizable goal. And thirdly, true creativity involves a sustaining of the original insight, an evaluation and elaboration of it, a developing to the full.\(^3\)

MacKinnon, therefore, sees creativity as a combination of arts, sciences, technology, and psychological testing.

Nevertheless creativity does not necessarily represent an exceptional ability. The imagination of a creative individual is, however, closely related to the intensity and clarity with which he or she is able to sense, intuit, and successfully analyze the problem or challenge in question. According to Holtzman, in his work dealing with bureaucracy and creativity: “Although creativity can be defined as a very valuable invention or novelty of concept and discovery, any adaptive change by an individual or group has within it an element of creativity,” which often leads to new, more effective organizational forms and relations.\(^4\)

In architectural terms, the ‘artistic’ architect looks for especially novel and statistically infrequent responses or occurrences at the level of the whole structure in its context—the ‘big picture’. Yet, many more rigid, yet highly skilled professionals, who are more bound to established tradition might think it quite outlandish, eccentric perhaps, to seek artistic expression in architecture which exceeds the limits of what has been symmetrically accepted by mainstream traditions in architectural development to date.


\(^3\) Broadbent, p. 2.

\(^4\) Ibid., p. 239.
Architects often approach design issues from diametrically opposite points of view. While they operate according to similar standards derived from the social sciences with respect to human need, they often seek standardized that are widely divergent in the way in which they seek to address or give expression to architectural visions and initiatives.

A creation is voluntary and conscious; it involves volition and cannot be reduced to a process of automation. There is a well established meaning attached to the act of ‘making’ or ‘doing’ which we call ‘creative’; the products: a poem, a play, a painting, a piece of music, or sketches for buildings of structures under contemplation, the product of imagination; this is what refer to as ‘creation’.

The creation or ‘making’ of an artifact, the exercise or practice of a craft, comes in two stages:

1. Imagining, making, or ‘coming up with’ the plan entailed in the origination or creation of the ‘object’ in question.
2. Imposing that plan on certain matter, or fabricating it, giving it substance, form, and, perhaps, therefore, utility of some sort.

What later becomes the actual design of a structure is, therefore, often initially thought of as an imaginary design, where the architect has used his creative power in the imagination of the design, in response to his or her understanding of the conceived purpose of the structure.

All of the above is the case whether the structure in question is a religious or a secular building. This is the nature of architectural creation irregardless of the character or function in question. Hence, the creation of an architectural design is most decidedly an instance of imaginative creation, even at the stage of the idea itself. The same thing applies, of course, to the creation of a poem or a picture, or any work of art. The boundaries of art are enormously fluid. In the words of Frank Barron (1958), an American psychologist: “By his imagination he may make new universes which are near to his heart’s desire.”[5]

The following three points serve to summarize our working definition of creativity as we have developed it so far:

1. A creator is one who, through the power of imagination, achieves a novel synthesis of extant ideational elements, novel at least insofar as he/she is concerned.
2. A creation represents the simple embodiment—tangible or non-tangible—of this new combination of ideational elements.
3. Put most simply, to create is to combine existing elements in new ways.[6]

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[5] Ibid., p.1
3. **Theories and Terminology.**

Theories concerning creativity can theoretically be grouped into ‘thinking’ and ‘creative’ process theories. *Creative thinking theories,* generally speaking, deal with models of intuition and the workings of both the conscious and the unconscious. *Creative process theories,* on the other hand, deal more with creative environmental applications than with the state of the human mind.

3.1 **Creative Thinking Theories.**

Philosophers, social critics, artists, architects, etc., have developed theories of creative thinking at least from the time of Plato and until today. Plato considered creative thinking to represent a sort of divine voice, which he likened to a flame, the more fanning it received, the brighter it would glow.[7] The work of Guilford, on the other hand, represents a contemporary treatment in our own day of the development of a theory of creative thinking which entails a theory of the structure of the intellect.[8] He suggests that intellectual functioning that can be described in terms of operation, content, and product, with each of these basic components or categories involving a variety of variations. *Operations,* for example, entails cognition, memory, divergent thinking, convergent thinking, and the power and processes of evaluation. *Content* entails figural, symbolic, semantic, or behavioral elements and *products* involve units, classes, relations, and systemic transformations or implications. These relationships are usually depicted in terms of three-dimensional models. The essence of Guilford's theoretical trajectory, for example, is that the most conspicuous and salient among the various operations involved in the creative process is that of divergent thinking. Divergent thinking represents a wide angle view of things; it is highly perspicacious, leading to the discovery of previously unknown solutions as the result of being able to harness the power of divergent currents of creativity in such a way as to result in syntheses of various creative elements. Divergent thinking, therefore, is radically distinguished from convergent thinking, which involves a close-up focus on detail; the ‘small’ vs. the ‘big’ picture.

3.2 **Creativity Process Theories.**

As suggested above, there are many theories that describe the creative process. Many of them describe a sequence of mental activities leading to solutions. Other creative process theories discuss primary and secondary mental processes, as they are related to the varying degrees and characters of

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creative ability. In 1950, Alex Osborn advanced a theory of creative process consisting of eight steps.[9]

1. Observation of a fuzzy situation,
2. Facts,
3. Problem definition,
4. Ideas,
5. Evaluation and selection,
6. Plan,
7. Acceptance,

Others have combined these steps into fewer categories. A typical arrangement is presented as follows:[10]

1. Preparation; Observation, and definitions of facts and problems.
2. Incubation; Mulling over ideas on a subconscious level.
4. Verification; Acceptance and Action.

4. Climate for Creativity.

There are many emotional roadblocks to creativity which are based on fear and/or a sense of inadequacy: fear of mistakes, failure, and supervision, along with specific and general distrust. Perceptual blocks result from a failure to fully utilize one’s senses and capacities, to separate causes from effects, to be able to fully investigate the obvious. Perhaps most importantly, cultural blocks may well often result from a tendency of individuals to conform to standards of behavior set down by the culture in question, organizational, etc. Our concern, of course, is with the kind of blockage, intellectual, emotional, etc., which results in diminished professional capabilities. These include, but are not limited to, failure to adequately access, process, and utilize information sources, inefficient office layout, inadequate equipment, and generally poor levels of performance.[13] There are other blocks to creativity as well, some may result from habits or custom, others are related to lack of motivation. Clearly, of course, managers may also give a person too much freedom, and the

10 Ibid.
13 M. W. Wolf, Managing the Creative Engineer.
employee may feel that there is no reason to strive for greater achievement, lapsing into a more or less comfortable accommodation with the status quo.

To facilitate a favorable climate for creativity, as much as possible, we need to struggle to overcome the blocks to creativity; central to this purpose is some sort of guarantee that the worker will not be penalized for attempts at creativity, that his position does not hang in the balance. Alternatively, managers can redirect, if need be, an employee who is working on a creative ideas that is simply unsuccessful, assisting his or her subordinate to pursue different creative paths or to develop their ideas in a way that better meets the challenge at hand.[14] It is best to avoid directly challenging a subordinate’s assumptions, as this tends to result in humiliation; it is generally much more effective to look for new outlets and paths for progression rather than to castigate. To be creative, employees must feel confident and not have to worry about their professional security. It must be remembered that success is never obtained without some failure.

5. **Effective Management for Creativity.**

In working with creative people, management must be able to recognize creativity, even suppress it, perhaps, on rare occasions where it is disruptive of higher goals or priorities. It is the central role of management to release creativity, facilitate its birth and fruition and to access the impact of creativity on quality, productivity, and profits. This is effective management and it is consistent with the goals of both employees and the firm.

Creativity achievement is, or at least should be, central to the labor of all professionals. The extent to which our labor is creative is an indicator of our general well-being, mental health, and happiness. Nevertheless, for better or for worse, the market is the ultimate master, the chief constraint to creativity unbridled. There must be a buyer, a client, who pays the bill. It does no good to find a solution to a complex problem if the procedure can never be used in the market place. The line between creativity and market demand is thin or porous, however, since creative achievement also creates market demand, as well as responding to it.[15]

Creativity is most frequently and strenuously encouraged as one moves towards the top of an organization, generally speaking, it tends to be more highly valued on higher levels of management power or hierarchy. Procedures need to be set into place, however, that reward innovation on the basis of its intrinsic value, rather than on the basis of its origin. Ultimately, it is the idea that has value, not the person, and ideas should be rewarded according to their value. It is important therefore, that management be highly sensitive to greatly valuing and subsequently rewarding creativity irrespective of the organization echelon from whence it came.

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15 M. W. Wolf
6. How to Encourage Creativity

Those who have successfully managed to encourage creativity suggest the following guidelines:[16]

1. Gear pressure toward goals,
2. Maximize contact and flow of communication,
3. Let the subordinate know where they stand,
4. Defend the subordinate against attacks of others,
5. Give the creative professional some time alone,
6. Help the creative professional to feel secure and self-confident,
7. Show tolerance for failure,
8. Provide special direction,
9. Respect outside activities and sources of stimulation,
10. Encourage the free flow of ideas,
11. Provide a creative and challenging work environment,
12. Recognize and reward creative achievement,
13. Do not demand total creativity, either of yourself or of others,
14. When soliciting creativity ideas, evaluate them quickly,
15. Allow creative people freedom to set up their work place in a way that they are comfortable with.

Of course, this does not represent an exhaustive set of guidelines, but it does touch on what are generally seen as the most salient factors.

With respect to the organizational point of view of managing and encouraging creativity, managers can strive to achieve this goal by being trusting, open, and by not only ‘allowing’ but also ‘promoting’ interdependent actions. A highly creative manager gives and receives information freely, providing new ideas and facilitating their implementation within the organization. Finally, a creative manager is likely to support and participate in team building activities and group development efforts;[17] such activities and encourage and reward self-determination and encourage self-assessment.

There are numerous commonly used phrases that tend to kill creativity. Many of these have been recognized by Alex Osborn:[18]

[18] Osborn.
1. A good idea, but…
2. Against company policy,
3. All right in theory,
4. Be practical,
5. Costs too much,
6. Don't start anything yet,
7. It needs more study,
8. It's not budgeted,
9. It is not good enough,
10. It's not part of your job,
11. Let's take a survey first,
12. Let's sit on it for a while,
13. That's not our problem,
14. The boss won't go for it,
15. We have been doing it this way for a long time and it works, …. And so on.

Once new ideas have been generated by either the manager or the subordinate, they must be tested for their creativity and especially their viability, the extent to which their implementation would be profitable. This is often quite difficult, however, since the creator tends to be biased towards the implementation of his or her ideas, sometimes disregarding objective considerations. It must be kept in mind that new ideas are able to make a profit for a company only if that company has the resources and capacity to implement them.[19]

Some sort of rating scale needs to be used to determine the potential profitability of a new idea. This evaluation should include a measure of the resources that would be required and the cost of implementing the new idea. It should also analyze the potential effects on workload, growth, and overall company planning and long-term objectives.

7. **Techniques for Creative Thinking**

There are many techniques for fostering creative thinking and problem solving, the most common of which is brainstorming. Other techniques that can be used include reverse brainstorming, various cataloging, listing, or grouping techniques, free association, forced relationships, morphological analysis, and input-output techniques. A brief description or explanation of each of these techniques is presented below.[20]

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19 D. Miller, *Recognition, Reward and Creativity Achievement*.
20 Ibid.
7.1 Brainstorming

This is a group approach to a problem or avenue of investigation in which the objective is to produce the greatest possible number of alternative, potentially constructive ideas for later evaluation and development. Reverse brainstorming, on the other hand, represents an attempt to make a list of everything that is wrong with an idea, concept, or procedure which subsequently serves as a basis for the search for various ways that the problem in question can be overcome.

7.2 Cataloging

Cataloging refers to a listing of information sources which could lead to or assist in the generation of other ideas.

7.3 Checklists

Checklists also facilitate the generation of valuable ideas and further clues as a result of each item being checked on a standard checklist, in reference to the problem or issue in question.

7.4 Attribute Lists

Here, the attributes of an idea, problem, or issue are changed or modified in such a way as to produce novel needs or applications for the idea or improve its application to the original purpose.

7.5 Free Association

Free Association is used to develop better ways of representing information in terms of words, symbols, sketches, numerical ordering, and/or pictures.
7.6 Forced Relationships

With forced relationships, the relevant elements are isolated and listed in such a way as to facilitate the development of new elements ideas and relationships (similarities, differences, analogies, cause and effect, etc.).

7.7 Morphological Analysis

Morphological analysis defines the problem in terms of all relevant, independent variables present, searching for useful permutations and combinations of these variables which show promise for the development of a superior solution.

7.8 Input-output Technique

This is a system design technique which consists of investigating a testing procedure, developing appropriate methods, optimizing and implementing the structure, and subsequently convincing others of its value.

8. Understanding Creativity.

To understand creativity, the following steps should be taken into consideration:

8.1 General model for problem solving

The problem solving process begins with an idea, the development of which is generally influenced from the start by the supervisor or manager. If the idea is not killed, the individual in question proceeds to the phases of research and data collection. The idea is more thoroughly evaluated, along with the data, and a focus is developed on the most important elements. The creator may ask the supervisor how they are progressing or the supervisor may check on the individual on their own initiative, either of which may influence the individual's decision.

The individual then proceeds to a period of incubation and further illumination period where he or she turns over the idea(s) and input received thus far. The creator may engage in right-brain activities, such as listening to music, drawing, or just relaxing. They may also leave the work place to discuss their ideas informally with colleagues or experts. At some point, however, they will return to the problem with a solution or will try to apply it on the basis of a trial and error or
problem solving methodology. If the solution fails or is deemed inadequate, the individual may return to the research and data collection phases or develop new feedback channels to find additional, useful information and then repeat the process until an adequate solution is reached, within the allotted time frame.

The creator then compares the solution with their original idea of what the outcome should be, and, finally, accepts the solution and shares the idea with the supervisor and the rest of the organization. This outline above represents a brief summary of Guilford's (1965, 1966) discussion of the model.[22]

8.2 The Creativity Organization

B. Miller, in his watershed treatment of Managing Innovation for Growth and Profit (1970), suggested that a company division or department be established for evaluating and reporting ideas because many firms employ creative people who have no avenue of access for proposing their ideas to top management or interacting with other divisions of the organization. All other divisions could then provide ideas to that particular division which is specifically concerned with creating ideas, where they would be evaluated and perhaps passed on to top management. This division could also provide training and counseling for managers at every level, in all divisions, serving as a coordinator of innovation regularly measuring creativity in all divisions and making recommendations to top management.

Conclusion

It has been argued here that creativity is a kind of socially recognized achievement in which novel products and/or ideas are shaped. So, creativity in architecture and architectural management, as with any other field, is a very valuable tool that should be utilized. Management needs to promote creativity, where appropriate, by providing the climate, recognition, and rewards that are necessary to motivate subordinates to be highly creative, more productive, and subsequently more satisfied with their work.

The most salient terms and theories related to creativity have been discussed, the characteristics of the creative organization, the climate that serves to foster creativity, effective management for creativity, techniques for creative thinking, and, finally, discussions of different aspects of creativity by leading researchers, illustrating the types of interactions that take place between individuals in performing the creative process within an organization. It is especially important, as has been suggested, that management help by providing a challenging work environment, enhancing

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[22] Taylor.
communication channels, allowing the free flow of ideas, and recognizing and rewarding creative subordinates.
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