

The architect's role in the dynamic design process - Possibilities and obstacles

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Introduction

The building process involves both dynamic processes and professional teamwork, a combination that confers on all the actors great economic and technical responsibilities. There are arguments for involving the user in the design process, so as to achieve appropriate outcomes. It is important to maintain a creative and generous working climate early on in a building-project, especially if users are involved: users may not be used to the aim of the process or the language used in the dialogue between the actors involved. It can be difficult to keep a dynamic process "alive" when a host of regulations and laws is directing and controlling both the actors' roles and their responsibilities to society and the project. There are also cultural factors and traditional working methods that can restrict the innovative design process. The architect can be the actor who guides the users through this dynamic process, keeping it alive. To achieve good results the architect needs certain skills and experience and need to draw on various models and methods to support the process. Which are the possibilities for and obstacles to steer the dynamic process? And what are the qualifications and working models needed to ensure success in this task?

Background

Several companies have expressed a desire to better understand and work with the user requirements. The positive outcomes of such efforts will probably be better products, more satisfied customers, and better company images. When a new building project is planned, many resources are brought together. The building process is a large -scale example of a creative and dynamic process supported by a dynamic organisational structure. However, there are several obstacles to maintaining the dynamic and creative atmosphere of the process. Laws, regulations and economic factors can impose restrictions, as can negative attitudes and poorly exercised leadership. A creative process requires a certain amount of trust and courage regarding both the process itself and the actors involved. Other industries use a range of methods and models to support new product design and these could be used in the building trade as well. In these processes experience gained from mistakes made is used to adjust the working methods, in the interests of improving both the product and the production process itself. Unfortunately we can see the same mistakes made over and over when producing buildings: it seems as if we keep building full-scale prototypes without ever learning from our mistakes. The responsibility to build sound, healthy buildings that are economically viable over the long term requires both good planning and good organisation.

The architect can be the actor who initiates the dialogue and maintains good communication between the users and the professional team involved. Different working models and methods can be used to obtain a better communication. Both full-scale models and 3D modelling at the computer can be used to describe to users how project plans are proceeding.

A dynamic and creative process needs the right attitude towards the task from all the actors involved and the architect can be both interpreter and guide through this complex process. If all actors share a

sense of reliability and security the result will be a better climate for communication when dealing with a new building project. What are the architect's own aims and intentions in relation to those of the building proprietors, regarding his or her role in the process? What can be done to support this dynamic and creative process?

Theory

Customer-focused planning and design is needed if we are to take the next strategic step in a changing world. The best strategy is to be able to discern customer expectations and needs even before customers themselves can. Customer-driven processes are often used in the development and design of new products other than buildings. It is useful to engage in dialogue during the creative process, in order to set as many guidelines as possible before production. Involving users takes time, and the need for resources is obvious, because time represents money - especially in the building process. The professional team of architects and engineers will have to meet the users and discuss their requirements and then translate these into drawings and plans.

Professional architects must also be willing to involve users when they expect the professionals to respect their point of view due to their increased understanding, which may present problems for the architect. Involving the user in the building process raises questions about relationships involving roles, power, knowledge, competence and who is responsible for decisions. Case studies conducted by Elisabeth Hornyánsky Dalholm [2000] indicated that the architect must reflect on how to communicate with users and that both the architect and the user must have trust in the process.

Several product design and development models are described by Eva-Stina Björk [2003] in her doctoral thesis, *Insider Action Research*. Integrated Product Development (IPD) entails the concurrent development of products, production processes and marketing procedures. These three types of processes are difficult to plan, study and generalise because they are complex and partly non-linear and chaotic. To understand what is going on in such processes, a researcher must be substantially involved and participate continuously in them in real time. The philosophical basis of such research is quantum mechanics and complexity theory three different positions are possible: observer, team member and project leader. Björk's studies show that the project leader role was an optimal role for acquiring an overall view of the development process. There are difficulties, however, in sampling the flow of information, so the project leader will be unable to have a holistic view of the situation. It is essential that product developers have social competence and empathy in order to assimilate input from the users, purchasers, and other actors involved. Björk's thesis specifically examined the development of assistive products for disabled people, a process in which these competencies crucial in order to gain a true understanding of user needs.

To increase the speed of product development various models of parallel product development are used models such as Simultaneous Engineering (SE), Concurrent Engineering (CE), Integrated Product Development (IPD), and Collaborative Product Development (CPD). However, these models are rarely used in practise, so improvement is necessary. Professor Stig Ottosson at Halmstad University started to improve the IPD model of Fredy Olsson making it to a dynamic IPD model called Dynamic Product Development (DPD). The difference between this and its precursor lies in its holistic/quantum mindset and philosophy. DPD includes tools to be used by the practitioners. Active participation and engaging in dialogue in order to keep the users' needs and requirements in focus are recommended in this method. In this way of working knowledge accumulation allows the overall and tested business/product plan to be realised early in the process.

The three parties required for this process are Business, Users and Society (BUS), and their involvement means that the end product will be profitable, user friendly, and environmentally friendly - in other words, sustainable. In short the user and the usage are the central points around which everything revolves. Design for Usability (Dfu) is also described. Designing for usability in products is a complex task in which hard functional values and soft values both need to be taken into account. According to Ottosson [1999] product developers require data input both before and during the development process in order to identify and satisfy user demands. However, data reliability differs depending on the data collection method used, as the figure below shows (*fig 1*).

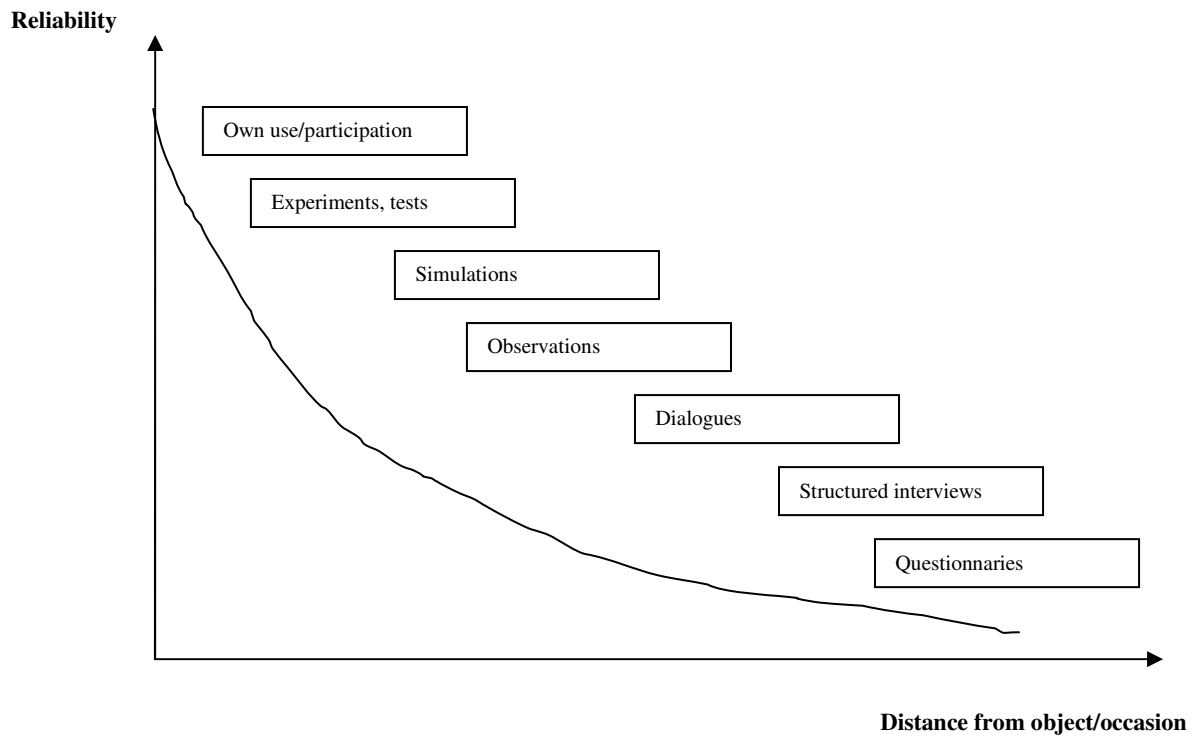


Figure 1. Data reliability depending on the data collection method used [Otto 1999]

When dealing with Product Development it is important to devise an efficient plan for the project at an early stage. Traditionally, efforts made to describe the common goal are cited as having a positive effect on the complex process of product development.

Kerstin Sahlin-Andersson [1989] describes the opportunities for architects to assume the task role of monitoring the unclarity, chaos, and complexity, so as to have the possibility of changing the plans as needed during the development process. She refers to Marsch [1976], who describes how in unclear situations development can be supported by a “sensible technology of foolishness”. This means that goals should be shaped by action and experience and that goals made early on in a process may impose unnecessary limitations. He describes the possibilities of working more experimentally and how it can be easier to add new ideas to an ongoing development process in the absence of traditional goals and programs. Treating goals as hypotheses allows us to change how we work and help us develop unusual combinations of attitudes and behaviours. Sahlin-Andersson describes the possibilities for architects to work with the present situation, but to consider the unclarity and avoid stereotyped imitation; possibly they will have the courage to play with new ideas that are more or less connected to reality during early investigatory work.

Birgitta Ericson and Britt-Marie Johansson [1994], describe various kinds of obstacles that prevent the architect from really being part of the innovation process, obstacles arising from “silent knowledge” and traditional ways of thinking. They refer to an article by Eskil Ekstedt [1991] that describes the “know-how” inherent in the architect’s role that contains often-mute experience, valuation, and imagination, regarding how certain work is being done. If better “know-why” knowledge is manifested, the innovation process could be more successful and the architect could be more supportive.

The building Industry is known for being conservative and traditional in its working methods and attitudes. “Why try something new, when things are going just fine with the way of working that we are used to?” is a common remark heard when someone is trying to make changes. However, there is no reason why the structure underlying the building process could not be regarded as a learning organisation and theorising in this area could well be useful. This could also be useful for discerning the possibilities for learning in a collaborative and cooperative way. Johnson, Johnson, and Smith [1991] refer to various books that describe the positive effects and power of cooperative interaction.

There seems to be a synergy that produces the most effective method for generating creative thinking when several people focus cooperatively on the same problem which Hill [1966] refers to as a “mastermind method”. If the reward system is based on favours awarded for individual performance, there will be obstacles in a culture of reliance on team efforts. Johnson, Johnson, and Smith clearly demonstrate the importance of developing cooperative learning skills in our students. This can be difficult, because such behaviour often runs counter to well-established values. One major outcome of cooperative learning is that people who work together develop positive relationships that are essential for motivating long-term achievement efforts and for healthy social, cognitive, and physical development. A cooperative learning structure includes various assigned roles, such as those of summariser, accuracy coach, elaborator, and observer. Checking for understanding and elaboration, are vital to high-quality learning. Caring about each other in the group comes from a sense of mutual accomplishment, from mutual pride in joint work, and from the bonding that results from joint efforts. All this contributes to a group’s productivity, because of the sense of personal responsibility and of sharing the work. It also increases the willingness to take on difficult tasks and supplies motivation and persistence in working towards the goal. As traditional colleges are very oriented towards competitive and individualistic learning and organisational structures faculty must truly understand the role of the instructor in implementing cooperative learning. In *Ten steps to a learning organization* Kline and Saunders [1995] describe several examples of how to work with learning and development in an organisation. Peter Senge’s *The fifth discipline* [1990] examined the learning organisation, doing so before similar theories were expounded by W.E Deming. Kline and Saunders noticed that a clear description of the process of how to do the work was missing. They described how to build up and maintain an environment that supports learning on all levels and stimulates the power and joy of the learning process for the individuals involved. They also refers to John Naisbitt [1982], who in the book *Megatrends* talks about the need to treat individuals in a company more carefully as the technological level becomes increasingly complex. He describes the phenomenon as “High tech-High Touch” and says that all individuals in an organisation must be more prepared to make a greater range of decisions of a more complex nature, decisions it is impossible to leave to a small group in the company. Organisations working on improved quality and customer focus produce positive results if the manager shows dedication to these issues. The whole organisation also needs to embody understanding of the issue and if the organisational culture supports this way of working, good outcomes will result. A good innovation climate is fostered by a feeling of general security and trust in a company. Employees need to know that it is acceptable sometimes to make wrong decisions, that testing and experimentation with new ideas is allowed. It is also good to foster in individuals better self-esteem and to support cooperative learning. The greatest threats to good learning results are fear, and hidden agendas, old structures, and traditional culture. By means of group learning such phenomena can more easily be uncovered and processed. It is good to know that you are not alone with this feeling of fear and experience of hidden agendas etc, and through fostering such openness, innovation can be more easily be accepted. Innovative work by definition entails a certain amount of risk taking, and a company must support this way of work, and prove that it does by awarding those who innovate.

In *Architectural Management in Practice*, Stephen Emmitt [1999] describes the problems that often arise when an individual attempts to combine the chaotic ethos of design and the restraint of management. Architects also struggle with cultural differences between the worlds of design and production. Issues of conceptual design have been studied, but issues related to detailed design have been largely ignored. Emmitt describes the core skill, the architect as designer must possess, in order to participate in a process constrained by time budget and having the purpose of producing a product. The design process needs to be monitored and co-ordination is a fundamental element of design management. If communication is to flow freely, team members must have a certain degree of empathy and respect for one another. This role calls for particular skills.

Kristina Grange [2005] describes how the building trade is characterised by the jealous guarding of one’s special preserves and old structures. Such defensiveness prevents fruitful co-operation between the actors involved in a design and building project. It is necessary to change such negative attitudes towards each other, she says, and if possible allow architects to contribute more to the building

process. Some explanations of this fact look at the historical trend of large-scale projects, focusing on production, and ignoring the architects. Today architects must taking part in the entire design process, making more contributions than simply those concerning aesthetics and superficial design concerns. The poor overall quality and the lack of an actor responsible for the wholeness of the project, argues strongly for a better process.

The Aim Of My Paper

The building process is complex and involves several actors with different roles and skills. In handling user involvement, there seems to be a need for several competencies in addition to those fostered by traditional architecture education in Sweden. The building process is, creative and dynamic, and throughout it the architect has the important role of maintaining communication and dialogue.

Knowledge of how to handle people and their reactions and interactions in such a changing process can be useful. The pedagogical role of guiding the users and actors involved, can also provide a good opportunity to reclaim a more central and important role [Svetoft 2005]. To be able to handle such a management and design role, architecture education needs to be combined with economics, law, and construction and production studies.

Based on my own experiences working as an architect on scholarly reflections during the case studies, I feel that we need to be more knowledgeable about:

- How to open up a discussion in order to formulate user's needs and requirements and how to match one's "expert knowledge" to conditions encountered in a given "real-world" situation.
- How to acquire robust tools during one's education to better address these situations.
- How to foster new understanding and attitudes towards issues of work and responsibility in being a part of creating the environment surrounding people's everyday lives.

Method

After reading descriptions on the websites of three Swedish universities of architectural education programmes and of the role of the architect, several questions remained. What are the content of such education and what tools are students being given that are applicable to handling user involvement and being part of the creative process? Is there any discussion in the universities of the future role of the architect?

To try and get some answers to these questions I surveyed third year students in Lund University in March 2006. This paper contains the results held at a workshop and answers to questions posed to third year architecture students in Lund University. Twenty-three students attended the workshop and everyone was participating and answered the questions. Nine groups were formed and after twenty minutes there was a presentation and discussion held with the whole class. The answers from the groups and the individual questionnaire are reproduced. I will conduct more research in the future to see the point of view of other actors involved in the building process by doing interviews.

The Architects' Role In The Dynamic Process

What is the role of the architect in the dynamic and creative building process? Which are the possibilities and the obstacles for the architect to steer the dynamic process?

The education lays the foundation for the attitudes and knowledge about the different skills that are needed. In order to know more about the attitude towards the role as an architect in the dynamic process I had the opportunity to meet the students in the third year at Lund University. If the right product is going to be developed the users' involvement are necessary. Co-ordinating and communicating is essential for a positive creative process.

My first question to nine different groups of students was *how they see the future role of the architect, how to co-operate with other actors involved and what they want to achieve:*

- establish a trustful situation to the other actors and the possibility to be a part of the whole process. They want to be good architects but not on idealistic terms.
- be the one responsible for the "ideas", with participation, and be able to work with clear areas of responsibility. Be a part of sustainable solutions in the built environment.
- be the driving force through the process from the start to the finished product. Create conditions for a good environment.

- be the co-ordinator with responsibilities in order to keep out conflicts. Create built environment that give possibilities to different kind of living. Obtain a standing for long-term consciousness.
- have the courage to question the traditional construction form. Keep up the debate about the role and maybe work in team – change the picture of “the lonely architect”. Create participation and discussions about other values than the building itself.
- be both the co-ordinator and the leading designer with a good social climate and understanding as guidance instead of position and power. Create a better society/world with a better social climate, a good environment for people to meet. Nice, bold and fresh environment. Have we as humans influence on the architecture or do the architecture have an influence on us? (the hen or the egg)
- have the opportunity to work in all countries in Europe with responsibility for the whole process.

The next question to the student-groups was ***which changes in the architectural education they think can be necessary:***

- broaden the education with possibilities to develop higher level of attainments.
- get a better holistic view and understanding of the other actors involved. More time to go deeper in certain topics.
- lengthening the education in order to create a better holistic view and a better understanding- not only theory.
- get more of special topics and have a discussion of real conditions/practice. Ecology, sustainability and more extreme conditions and with a global perspective without losing focus on local conditions.
- economics, law, construction, management and communication
- get more time for social/society topics and a better understanding of the building process.

The next question to the individual student was ***if the user should be involved in the building process and if these topics have been included in the courses:***

- Yes, because the user is the one living with the design. It can be done by using physical and creative models. The topic should be in a course in the early part of the education.
- Yes, because they possess a knowledge that the architect never can achieve on their own. Maybe the architect should be responsible of taking the decisions due to a holistic view. In the education the students have been acting against “purchasers” and been presented to an implemented project.
- Yes and No, the architect should participate in the situation of the user and try to get the user a feeling of involvement. But in the end it’s the architect that decides.
- Yes, architecture has no value if it is not aimed for somebody and everybody can experience architecture. We don’t have the expert-knowledge that is incommunicable. No nothing about this topic has been brought up, but these issues should always be there as well as the environmental issue.
- Yes and No, it can bring forward better solutions and understanding of the users but it can end in too much subjective opinions. One lecture about Bo 100(A *project in Malmö by Ivo Waldhör, with user involvement*)
- Yes considering that what we are building must be useful for a long time it is unnecessary to create bad environments that is not appreciated.
- Yes, by explaining the conditions and try to get the user to understand the value of the architecture. By the dialogue and in exchange I could get a lot of important input from the user that can increase the character of the project.
- Yes, the users should of course have influence on the design. It is possible to have several meetings during the project for the users to express there requirements. One should also follow the way it is used in order to see what’s good and bad from the user perspective. No we haven’t had any courses on this topic but it but should have the opportunity to practise in a project with user involvement.
- Yes, because we create the building for the user and it is the responsibility of the architect to find the point when both are satisfied with the project. We had a two hour lecture about Bo 100 in Malmö. It is too little time during the education period for four and a half year.
- No The architect should have the ability to live the part and satisfy the users’ requirements and also have a long-term perspective. I am interested in getting more knowledge about how to really involve the users – more than to tell the colour of the wallpapers. How can they really add something to the process?

- Yes, to involve the people in the process and share the knowledge – and maybe reconsider. No you only get a glimpse of the process/method but there should be more of a discussion about how the interpretation should be done, by someone who is not an architect.
- Yes to democratise the process and to do the work more interesting and connected to reality. No we have nothing about this topic in the education.
- Yes democratisation through meetings, and maybe financed from foundations. Maybe by laws that gives the Real estate owner the responsibility. Yes we had some lectures with examples of projects. These were initiated by the students themselves.
- Yes, to gain a better understanding of the usage. One could use discussions or 3D-models as a tool. Only brief parts about the subject have been given in lectures about user involvement.
- Yes, user involvement generates more satisfied customers and increases the awareness of the built environment. This can lead to a better insight and understanding about the importance of the built environment. Lectures in these issues were given in the late eighties by the Department of Building Functions Analysis.
- Yes, because it's a co-operating process where the user is directly connected to the result in this case the building. There has been a lecture about a democratic perspective of the building project.
- Yes, New ideas- better result. The society goes through changes which creates new requirements of use. Only a short lecture in this subject was given in first year.
- Yes but only for general requirements. But I'm more sceptical about users' special needs designs an environment that is supposed to fit others. Only short parts of this subject were presented in a project, could have been more of this.
- Yes, to be able to analyze and respect the users' requirements and be able to communicate and explain basic facts and technology and to steer the designing process. Short parts of this issue have been given in lectures, but more time is necessary combined with social - psychology and management.
- Yes, the users' experiences of the built environment should be the base for the designing process. Possible to get a picture of what they like/don't like and what can be improved. No but be a part of a project that you have chosen.

Conclusions

There are *possibilities* for architects to play a role in the dynamic and creative design process. This chaotic and complex process is impossible to control and if you attempt to do so, it will no longer be "alive". The design process allows the linking of two worlds or cultures - the chaotic and creative culture of design and the restrained culture of management. This cultural clash can offer new possibilities if better dialogue is achieved. The building process combines the design process with considerable recourses such as money, working time, and building materials. This gives the actors involved the responsibility to work effectively. Because "time is money" any improvements that make the process shorter and easier to handle are desirable. Influence is of great importance if taking the role of having the possibility of changing the plans as needed during the development process. Some of the design models mentioned above can be used as can good leadership and organisations that support the creative process. Knowledge of the process can give important tools for facilitating the production of new, better, and more usable products.

But there are several *obstacles* to playing such a role in handling the design process. The building Industry is full of traditions and is not known as innovative. There must be good arguments if one wishes to change methods and strategies. Maybe the collaborative learning process can offer some new directions in the way of working. The role of the architect is based on their education and the team member must have respect for one another. The attitudes towards the role and the other actors involved is an obstacle because the architects' struggles between the worlds of design and production. It seems that the Swedish architectural education focuses too narrowly on aesthetics and on giving students the tools with which to express themselves. There seems to be a lack of knowledge of the methods and models to use when communicating and maintaining a holistic view. The communicating and co-operating architect must have more knowledge of economics, law, management and social psychology.

Discussion

The architect's role is an example of a life-long learning process in which experience shows you how to work and improve one's skill. Answers from the third year students at the architectural education in Lund reveal the gap between theoretical and practical skills. Preparation for their working life and the role of handling the creative and dynamic process is of great importance. Some of this knowledge can be regarded as "silent" knowledge and must be experienced. To practise the role in working life is maybe the best way to learn these skills. There are also difficulties and obstacles inherent in the traditional role of the lone architect, the arbiter of good taste and design. In this tradition making a compromise is like surrender and dialogue with the user is of no use. If there is to be a change of this tradition, the surrounding structures and actors must allow and support it and new expectations must be fostered.

One's attitude towards the role of the architect and awareness of the attendant responsibilities is often based during one's time of education. The students in Lund University are eager to help create a better society and built environment. They also long to be part of the whole building process. Co-operating with the other actors involved and trying to better understand the users' needs and requirements are also part of their outlook. Several students can also perceive the positive effects of exchanging knowledge with the users involved, and they can even grasp the democratic issue of involving citizens in the design of the built environment. This way of working, however, demands communication and co-operation skills and entails playing a pedagogical role when handling the process.

Lecturers and fellow students should take advantage of the opportunity they have to discuss the role of the architect and what they want to achieve as one. There also seems to be a possibility of adding a broader range of theoretical knowledge to the architectural program. The students interviewed gave examples of needed courses as well as better tools and models for communicating with users. The expectations of architects' commitment and skill can only be fulfilled by the architects themselves. In today's building industry the level of functionality, responsibility and ability of architects is comparable to that of other actors, and there are signs of new actors that assume the role of managing the process. The students' eager and positive views on their future role in creating a better world are comforting and one hopes not groundless.

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