Review:

The Art of Observation: Understanding Pattern Languages

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Christopher Alexander's book, *The Timeless Way of Building,* is probably the most
beautiful book on the notion of quality in observation and design that I have been reading
since Robert Pirsig's (1974) *Zen and the Art of Motorcycle Maintenance*. It was
published in 1979, when Alexander was a professor of architecture at the University of
California, Berkeley, where I was at that time studying. Although I was aware of some of
Alexander's famous articles such as "A city is not a tree" (Alexander, 1965), the book
(Alexander, 1979) never quite made it to the top of my reading list. This remained so
until recently, when I met a software developer who enthusiastically talked to me on a
book he was currently reading, about the importance of understanding design patterns. He
was talking about the very book I had failed to read during my Berkeley years and which,
as I now discovered, has since become a cult book among computer programmers and
information scientists, as well as in other fields of research. I decided it was time to read
the book.

1. The Quality without a Name

I was in for a wonderful surprise. The book is written so beautifully that it is a real
pleasure to read. Its language is poetic, yet precise; fundamental, yet concrete and
practical. Its concept of observational and design quality is so powerful that it makes you
understand, and actually *see,* the ways in which so many of the buildings and public
spaces that surround us lack quality and for this reason fail to make us feel good and

alive. Alexander makes no attempt to define his notion of quality in terms of other qualities but prefers to refer to the Q*uality without a Name,* for "in spite of every effort to give this quality a name, there is no single name which captures it" (Alexander, 1979, p. 39). The fact that quality cannot be defined does not, however, imply that we cannot be precise and concrete in unfolding its meaning:

> There is a central quality which is the root criterion of life and spirit in man, a town, a building, or a wilderness. This quality is objective and precise, but it cannot be named. (Alexander, 1979, p. 19)

If there is one single word that comes close to Alexander's notion of quality, it is *being alive.*

> The specific patterns out of which a building or a town is made may be alive or dead. To the extent they are alive, they let our inner forces loose, and set us free; but when they are dead they keep us locked in inner conflict. (Alexander, 1979, p. 101)

The book is an eye-opener. It makes it plain what is going awry in contemporary architecture and urban planning, and for this reason ought to be mandatory reading for members of architectural juries and planning authorities. In addition, I would argue that the *The Timeless Way of Building* embodies insights into the essence of quality that apply not only to architecture and city planning but also to many other areas as well. It is, ultimately, a book not just about building, but about being alive.

Accordingly, the essence of the Quality without a Name consists in the idea of *design patterns that are alive* and which, if identified in sufficient number, can be used to make up a whole *pattern language* for quality design.

2. Patterns that are Alive

A design pattern is a way to solve a specific problem of design. Basically, a design problem arises when a situation involves two conflicting forces that are not properly balanced. For instance, when a room has a window on one side and a sofa corner and TV place on the other side, people tend to feel uncomfortable, for they are unable to balance two conflicting goals: they wish to sit down (so as to make themselves comfortable and to read, talk to one another, or watch TV) while at the same time, they wish to be close to the window (so as to look out, see the view, and enjoy the sun light). Once we have understood the nature of the problem, we can resolve it easily by moving the sofa corner and TV close to the window. This immediately creates a "place" where people feel comfortable to stay. Alexander calls it a "window place"--a basic pattern that everyone can experience and apply at home. As a rule, a room that does not have a window place lacks quality; its windows are just holes in the wall.

> If the windows are just holes in the wall, and there are no places where the windows are, one force pulls me towards the window; but another force pulls me toward the natural 'places' in the room, where the comfortable chairs and tables are. So long as I am in this room, I am pushed and pulled by these two forces; there is nothing I can do to prevent the inner conflict they create in me. (Alexander, 1979, p. 112)

3. The Idea of a "Pattern Language"

Obviously, the "window place" pattern is a deliberately simple example of a pattern, but it illustrates the basic idea. It is important to realize, according to Alexander, that patterns are not arbitrary design ideas but can and need to be identified and verified through careful observation. Furthermore, patterns become meaningful only within a hierarchy of interdependent patterns, in which each pattern helps to complete larger (more generic) patterns within which it is contained, and in turn is further completed by smaller (more specific) patterns that it contains. Each pattern has a well-defined place in the overall network of patterns; together, they constitute a *pattern language,* a vocabulary of design that consists not just of words but of mental design images.

Rooted in the specific cultural tradition to which we belong,

> Every person has a pattern language in his mind. Your pattern language is the sum total of your knowledge of how to build. The pattern language in your mind is slightly different from the language in the next person's mind; no two are exactly alike; yet many patterns, and fragments of pattern languages, are also shared.
>
> When a person is faced with an act of design, what he does is governed entirely by the pattern language which he has in his mind at that moment. Of course, the pattern languages in each mind are evolving all the time, as each person's experience grows. But at the particular moment he has to make a design, he relies entirely on the pattern language he happens to have accumulated up until that moment. His act of design, whether humble, or gigantically complex, is governed entirely by the patterns he has in his mind at that moment, and his ability to combine these patterns to form a new design. (Alexander, 1979, p. 202f)

One of Alexander's favorite examples is the Swiss farmhouses and barns. How is it possible that generations of farmers, who surely had little knowledge of architecture, were able to build all those beautiful farmhouses and barns which are so characteristic of Swiss villages and which at the same time show individuality and uniformity? It is possible because in the traditional Alpine culture, the required pattern language was commonplace. Each farmer knew how to apply it to build a house or a barn that would look similar to all the others, yet would be uniquely adapted to the place where it was built and to the family that would live there. Furthermore, since all farmers of a community had a similar (although slightly different) pattern language in their minds, the

use of the pattern language generated that characteristic "balance of uniformity and variety which brings a place to life" (Alexander, 1979, p. 191). Alexander suggests that the following list of specific patterns describes a typical Swiss farmhouse in the Alpine region of Berne (the individual patterns can be found explained elsewhere; see Alexander, Ishikawa, & Silverstein, 1977):

> NORTH SOUTH AXIS
> WEST FACING ENTRANCE DOWN THE SLOPE
> TWO FLOORS
> HAY LOFT AT THE BACK
> BEDROOMS IN FRONT
> GARDEN TO THE SOUTH
> PITCHED ROOF
> HALF-HIPPED END
> BALCONY TOWARD THE GARDEN
> CARVED ORNAMENTS
> (Alexander, 1979, p. 187)

4. Against Modular Architecture

The way a pattern language works is not through a process of addition or combination of preformed parts of a design, but through a sequential *process of unfolding,* in which each pattern is developed in the context of the whole that is given by previously unfolded patterns:

> The patterns operate upon the whole: they are not parts, which can be added--but relationships, which get imposed upon the previous ones, in order to make more detail, more structure, and more substance--so the substance of the building emerges gradually, but always as a whole, at each stage of its growth. (Alexander, 1979, p. 459)

Design thus resembles more the evolution of an embryo than the drawing of an architectural plan. It is a process of growth--of increasing differentiation--with the pattern language operating as its genetic code. No application of a pattern will ever generate exactly the same result, for the result depends on the context generated by the previous stages of growth. This is different from conventional architectural design, in which the details of a building are made from identical, modular parts (e.g., prefabricated windows).

> When parts are modular and made before the whole, by definition then, they are identical, and it is impossible for every part to be unique, according to its position in the whole. ... It is only possible to make a place which is alive by a process in which each part is modified by its position in the whole. (Alexander, 1979, p. 369)

Contemporary architecture heavily relies on modular design and for this reason produces buildings and spaces that are not alive and do not make us feel alive.

5. Towards a New Literacy for Professionals and Citizens

I would argue that not only architects, city and regional planners, or software developers, but all of us who are in a wider sense engaged as systems designers, whether as researchers and professionals in some field of applied science and expertise or as active citizens interested in contemporary issues of public policy (e.g., social, economic, and environmental policies), might do well to work towards a *new kind of literacy*-- understanding the language of those patterns which are fundamental to our specific fields of interest. One reason why the idea of software patterns has become so popular among software developers is that it gives them a chance to talk about software development problems and strategies without talking about programming code all the time. Generally speaking, thinking in terms of fundamental patterns might enable professionals and lay persons in all areas of design to develop new, shared languages that would allow them to become creative and competent designers without needing to be specialists.

I would suggest that one of the particularly interesting consequences of the concept of a pattern language is indeed that it is apt to redefine our notion of competence. In the traditional Alpine culture, any farmer "knew" how to build a beautiful house; he "knew" because he had a pattern language. Why should the same concept not apply to other fields as well? Any person with a pattern language would then be able to visualize and articulate basic design ideas without needing to talk the specific jargon (code) of the specific field concerned. As Alexander explains with a view to architectural, regional, and environmental design:

> A person with a pattern language can design any part of the environment. He does not need to be an 'expert.' *The expertise is in the language.* He can equally well contribute to the planning of a city, design his own house, or remodel a single room, because in each case he knows the relevant patterns, knows how to combine them, and knows how the particular piece he is working on fits into the larger whole. (Alexander, 1979, p. 353f, my emphasis)

6. Conclusion: Re-creating our Languages with a View to Enhancing Research Practice in Multiple Domains

Although Alexander's book is not about research methodology and practice, it nevertheless has interesting implications for research. First of all, the book is a marvelous statement of *the art of careful observation*--of *seeing* and *sharing* patterns that are alive-- as a neglected foundation of high-quality design:

> If we hope to bring our towns and buildings back to life, we must begin to re-create our languages, in such a way that all of us can use them: with the

> patterns in them so intense, so full of life again, that what we make within these languages will, almost of its own accord, begin to sing.

> To start with this requires simply that we find a way of talking about patterns, in a way that can be shared. (Alexander, 1979, p. 246)

I find this call for re-creating our observational languages thought-provoking indeed. I think it is fundamental for reflecting on our notions of sound research practice in all fields of science and expertise. Clearly, our often obscure languages could benefit from efforts to work out and formulate more carefully than is customary the core patterns that constitute specific domains of observation and design. Clearly, our discourses and writings could benefit from efforts to render them "full of life," so that the underlying patterns would stand out in ways that would enhance clarity and could be shared with observers across all disciplinary and professional boundaries.

A second major implication I see is this. In many fields of research, particularly in the technical and applied disciplines, researchers now face increasing demands on the part of funding bodies and policy-makers as well as the general public to adapt research methods and practices to the needs of new contexts and to make them *relevant to practical action.* At the same time, there are growing pressures not only to work across disciplinary and professional boundaries but also to give *users* a relevant role to play. These demands have stimulated the arrival of new frameworks for applied science and expertise, frameworks that shift the basic methodological focus from the "context of justification" (as originally distinguished from the "context of discovery" by Reichenbach, 1938) to the "context of application" (e.g., de Zeeuw, 2001; Gibbons, Limoges, Nowotny, Schwartzman, Scott, & Trow, 1994; Ulrich, 1983). I find the notion of pattern languages of high potential interest for the continued development of such action- and user-centered research approaches. Promoting literacy in pattern languages promises to open up new avenues for *capacity building* and *cooperation* among researchers and users, as well as for *emancipating* users from those in control of knowledge, that is, professional experts, and those who can afford to pay them.

As far as I see, only a very few authors have explicitly considered Alexander's work with a view to developing new conceptual frameworks for research. Dash (1999), in a sweeping attempt to develop a generic conceptual framework for action-oriented research in multiple domains, offers a short analysis of the role that Alexander's notion of pattern languages might play. As a core concept for such a framework, he uses a concept of *agency* that operates simultaneously at a local level of applying research tools, so as to produce some situational improvement, and at a global level of developing the tools themselves, so as to ensure appropriate practice and learning. This prompts him to examine whether Alexander's notion of pattern languages meets the requirements of both levels. At the local level, he concludes, it may enhance the interaction among professionals ("producers") and their clients ("users" of research) in a way that increases the capacity of both sides to achieve local improvement. At the global level, however, Dash diagnoses a certain lack of provisions that would make sure that a specific pattern

language continuously develops based on what can be learned from its local applications. In his words, he finds that:

> In the literature pertaining to 'pattern language,' there does not seem to be the notion of operational coupling between the two levels [of local and global agency] which could make them exert a constructive and critical influence on each other. (Dash, 1999, Sec. 7.2.1)

In this context, Dash (1999, Sec. 7.2.1) wonders how Alexander can conceive of his pattern language approach as a *timeless way* ; "it should always be possible to challenge the authority of anything (e.g., a 'language')." It certainly should! To do justice to Dash's concern as well as to Alexander's intent, I suggest we understand the "timeless way" as referring not to any specific pattern language but only to the underpinning conception of high-quality observation and design.

As a third, related comment, it appears essential that we embed all development and use of pattern languages within a well spelled-out concept of reflective research practice. Thanks to their capacity-building and emancipatory implications, pattern languages promise to support reflective practice; but they can hardly supersede the need for a systematic revision of our basic notions of applied science and expertise, in terms of what I have called the *critical turn* (Ulrich, 1983, 1994, 2001). Perhaps my work on critical systems heuristics (CSH), with its methodological core concept of *boundary critique* (see, e.g., Ulrich, 2000, 2001, 2003), has something relevant to contribute in this respect, oriented as it is towards supporting critical and emancipatory practice (I understand reflective practice as implying both self-critical and emancipatory efforts). In fact, I find it tempting to think of CSH's conceptual framework for boundary critique as a new pattern language of its own, a language that should help researchers and professionals of diverse fields in achieving reflective practice.

Finally, I should mention that Alexander (2003a, 2003b) himself is now working towards generalizing his notion of pattern languages for multiple domains of research and professional practice. As far as I can see, however, these efforts primarily aim at providing a theoretical foundation for the use of pattern languages in basic sciences such as biology, ecology, physics, mathematics, or computer science; the hope is that pattern languages should help us in understanding the "nature of order" and "complexity" in these research domains. In one phrase, Alexander's current concern is in *complexity theory* rather than in promoting reflective practice in action-oriented contexts. This may explain why the suggested critical and emancipatory implications of Alexander's work, particularly with regard to the inevitable value implications and the frequently controversial nature of applied research and expertise, do not appear to take a central place in his latest efforts (an observation that should in no way deflect attention from the monumental scope of those efforts).

7. A Personal Illustration: *Tree-House Pattern*

The reader may wish to have a familiar example of the rather abstract notion of pattern languages. Thinking of my childhood, a wonderful example of a simple pattern language comes to my mind. It is a pattern language that many children share and which empowers them to become creative and competent designers of their environment. I think of the *tree houses* that we built and enjoyed so much, as places that made us feel alive and happy.

How is it possible that children are capable of building tree houses? I assume it is possible because children learn the language of tree houses through playing with other children; the patterns contained in the language then empower them to build their own individual version of a tree house. To some extent, tree houses may also represent an *archetype* that all human beings share deep in their minds and hearts, I don't know. What is certain is that although each specific tree house will be a unique expression of the individual creativity of its young builders, everyone will immediately recognize it as a familiar pattern, and what is more, as a pattern that makes everyone feel good. If you once built a tree house in your childhood, can you ever forget how good it felt to stay in it?

My interpretation is that the tree house embodies a pattern that responds to two basic conflicting desires of children--a longing for protection on the one hand, a longing for discovering the world on the other. The tree house balances these two conflicting forces by allowing children to withdraw to a place of their own where they feel safe and protected, while at the same time offering them a privileged vantage point for observing the surrounding area.

In any case, what better example can there be of the empowering nature of a pattern language than that of children being able to design their own tree house, and feeling so good about it that they will never forget it for the rest of their lives? As far as I am aware, Alexander's list of no less than 253 patterns that he and his research group in Berkeley (Alexander et al., 1977) had identified by the time *The Timeless Way* was published, does not include the tree house; however, it does include a number of related patterns that might become part of a language of tree-house design, such as "tree places," "entrance transition," and "outdoor room." I take the liberty here of using it as a personal illustration of the power of pattern languages, and of the quality they may help us achieve in observation and design. As well as the "window place" or any of Alexander's other patterns, the tree-house pattern radiates that living Quality without a Name which *The Timeless Way of Building* aims to revive in contemporary architecture and which somehow has been lost in the long process of professionalizing and industrializing the art of building--the art of designing spaces that make us feel comfortable and alive.

A quarter of a century after its publication, the book's message is as timely and essential as ever. There is still much to be learned from it, not only in architecture and planning but in many other fields of research and expertise as well.

Figure 1. An Archetypal Pattern Language of Building: The Tree House. "A person with a pattern language can design any part of the environment. He does not need to be an 'expert.' The expertise is in the language."--Christopher Alexander, *The Timeless Way of Building* (1979, p. 353). Photograph © 2005 by Werner Ulrich.

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