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High-quality design (ii): towards literacy in pattern languages The idea of a *pattern language* may well be one of the most fundamental recent discoveries in the field of architecture and planning, a discovery that is now becoming increasingly influential in other fields of applied science and expertise. For instance, it is rapidly gaining popularity in computer software development and information systems design. In other fields, it is still relatively unknown, though. With this month's page, which for once takes the form of a book review, I would like to draw the attention of a wider group of reflective researchers and practitioners to this new notion of a "pattern language" and, at the same time, to expand the reflections on the nature of *design quality* of March 2005 – for that is what the idea of a "pattern language" is ultimately all about.

Christopher Alexander's *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 *Zen and the Art of Motorcycle Maintenance* of 1974. 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,"[†] the book 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 a few other fields of research. I decided it was time to read the book.

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,

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* C. Alexander:
The Timeless Way of Building,
New York : Oxford University
Press, 1979.

† C. Alexander:
A city is not a tree.
Architectural Forum, 122,
No. 1, April 1965, pp. 58-62
(Part I) and 122, No. 2, May
1965, pp. 58-62 (Part II).

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 *Quality without a Name*, for "in spite of every effort to give this quality a name, there is no single name which captures it" (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." (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." (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 to many other areas of life 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.

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." (p. 112)

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." (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." (p. 191)

"Outline of a pattern language for a farmhouse in the Bernese Oberland:
 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"
 (p. 187)

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." (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." (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.

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." (p. 353f, my emphasis)

Implications for reflective professional practice and research I believe that increased awareness and careful elaboration of pattern languages, thanks to their capacity-building and emancipatory implications, might help professionals and researchers of many fields in enhancing their reflective practice. However, to harvest this potential, it seems essential to me that we embed all development and use of pattern languages within a well spelled-out notion of reflective practice. Pattern languages by themselves 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".[‡] Perhaps my work on critical systems heuristics (CSH), with its methodological core concept of *boundary critique*, has something relevant to contribute in this respect, oriented as it is towards supporting critical and

[‡] W. Ulrich:
Critical Heuristics of Social Planning: A New Approach to Practical Philosophy, Bern, Switzerland, and Stuttgart, Germany: Haupt, 1983, and New York and London: Wiley, 1994. – Can we secure future-responsive management

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.

through systems thinking and design? *Interfaces*, 24, No. 4, 1994, pp. 26-37. – The quest for competence in systemic research and practice, *Systems Research and Behavioral Science*, 18, No. 1, 2001, pp. 3-28.

This month's picture: the *tree-house pattern* Thinking of my childhood, a wonderful example of a 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 through playing with other children, they familiarize themselves with the language of tree houses; 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 had identified by the time *The Timeless Way* was published,[†] does not include the "tree-house"; but 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.

† For a full description of all 253 patterns, see C. Alexander, S. Ishikawa, and M. Silverstein: *A Pattern Language: Towns, Buildings, Construction*, New York: Oxford University Press, 1977.

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.

Bibliographic note A slightly expanded and adapted version of this essay will be published as "The art of observation: understanding pattern languages" in the *Journal of Research Practice*, 2, No. 1, 2005, Article R1, in both HTML and PDF format.

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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)

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