

Toward a Socio-Technical Pattern Language for Social Systems in China and the World.

John C. Thomas

IBM T. J. Watson Research
PO Box 218
Yorktown Heights, NY 10598 USA
jcthomas@us.ibm.com

Abstract

We describe an approach to one of the key challenges of applying HCI findings and methods to China; viz., how can we generalize across cultures and learn from others when each situation is unique? We propose that Pattern Languages are one way to capture what is invariant while leaving the flexibility to deal with the specifics of geography, culture, language, goals, and technologies.

Keywords

HCI4D, social media, international development, pattern language, patterns, lessons learned, story.

ACM Classification Keywords

H5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous.

General Terms

Pattern Language, generalization, cross-cultural, inter-cultural, economic development, patterns.

Introduction

It is essential that systems be designed in light of users, tasks, goals, and the specifics of context and technology. While this is *invariably* true, it is *especially* important when one is designing for people who are substantially different from the team of developers in terms of background assumptions, language, culture, and geography. And yet, intuitively, it also seems unlikely that HCI and CSCW must essentially “start over” in designing for people in every country. If *nothing* can be generalized across situations, then the work of developing collaborative systems will be extremely costly. In addition, if systems are completely different for every country and culture, then

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CSCW 2011, March 19–23, 2011, Hangzhou, China.

ACM XXX-X-XXXXX-XXX-X/XX/XX.

technology thus developed will lose an opportunity to serve as a bridge across cultures but instead will become another kind of divide between cultures and the potential learning and creativity that comes from cross-cultural collaboration will be minimized.

Pattern Languages

We propose that Pattern Languages may be a reasonable intermediate method of generalizing for the fields of HCI and CSCW. A Pattern is the named solution to a recurring problem along with an analysis of that problem. A Pattern Language is an interconnected web of Patterns that attempts to cover a particular field. The concept of Pattern Language was first introduced by Christopher Alexander and his colleagues with regard to the physical architecture for buildings and urban design [1]. However, the concept has since been applied to many fields including object-oriented software design [2], change management, project management, community development, pedagogy, human-computer interaction [3], and socio-technical systems [4].

A number of formats with varying degrees of formality and completeness have been proposed for patterns. A Pattern may include a Title to capture tersely and evocatively the solution, a way of indicating relative importance such as a number of asterisks, a Picture which shows an example, an Introduction which relates the Pattern to other Patterns, a Headline to summarize the essence of the problem, the Problem Body which describes the context and background, the Forces which constitute an analysis of the problem, a Solution, a Diagram which shows the essence of the solution, and Connections to lower level Patterns. In other cases, a much simpler format has been used. For

example, in the public sphere patterns project [4], we typically used only Title, Introduction, Picture, Context, Discussion and Solution. The utility of a Pattern Language is not found so much in the specifics of format but in the spirit of the attempt to capture what is learned at the appropriate level of generality so that it is widely, if not universally, applicable. Consider for example, Christopher Alexander's Pattern 72 [1], Local Sports. The Headline states: "The human body does not wear out with use. On the contrary, it wears down when it is not used." In the discussion, a diagram shows the relationship of activity level to mortality. Needless to say, *which* particular sports are popular will vary with culture, geography and time. It would be foolish to try to dictate a particular sport or set of sports as being "better." But, it is claimed, that some kind of sport is desirable and healthy regardless of culture or setting.

In a similar vein, we may at least hypothesize that socio-technical patterns may also provide a degree of universality. Consider, for instance, the Pattern: "Who Speaks for Wolf?" [5] that basically states that all stakeholders or their proxies should be consulted before design begins. *How* various stakeholders will be brought into the process will obviously vary tremendously from situation to situation, depending for example, on custom and culture. Another proposed Pattern is "Greater Gathering" which proposes that although people may separate for efficiency during various cycles, at some point, it is important for everyone in a community to get back together. When this happens and what is done during this "Greater Gathering" will clearly depend upon the culture.

In what follows, two specific Patterns are suggested. Space does not permit a full explication of the Patterns but hopefully enough is presented so people can see the essence and judge whether the right level of generality has been captured.

Pattern: Context-setting Entrance

Context: A group of people has been attempting to accomplish some task as effectively and efficiently as possible. Because human being function in many different contexts and come from many different backgrounds and cultures, there are a wide variety of behaviors that are considered "appropriate" in various circumstances. Sometimes, we are expected to compete with each other vigorously. Other times, we are expected to be highly cooperative. Sometimes, the point of a group is to make a lot of noise. At other times, we are expected to maintain a respectful silence. When our own expectations are violated, we may feel resentful, angry, or afraid. When we violate the expectations of others, we may feel embarrassed or resentful. A lack of understanding of expectations not only tends to produce negative emotions; it also can directly and negatively impact productivity. We don't want to be the only person at a party to show up in a formal dress while everyone else is in casual wear --- or vice versa.

Problem: How can people select from the tremendous variety of possible behaviors those that fit in smoothly with an overall group process?

Forces:

- People have a drive to learn and practice new skills.

- People have a drive to be as productive as possible in order to acquire things and experiences.
- People have a drive to become defensive if they are blamed for a violation of expectation when they had no idea what that expectation was.
- It is easier to behave in a way that complements the behaviors of others if the expectations of other people are clear.
- Conventions of ritual, architecture, event, and style have been developed that help cue people about the type of interaction that is expected. When it comes to new technologies or systems with which people have little or no experience, people face great uncertainty about how they are supposed to behave.

Solution:When developing a new collaborative system, use the appearance of the system to help set expectations by relying on relevant and appropriate cultural conventions.

Pattern: Small Successes Early

Context: A complex undertaking requires the interaction of many people with various backgrounds, skills, and temperaments. They have not worked together before. The group wants to get started and wants to be successful.

Problem: Although diversity is a potential source of strength, at first, when strangers try to work together, there is likely to be natural confusion about how to proceed because people will have different experiences about the best way to organize. This natural confusion, combined with different backgrounds, may lead people to mistrust each other, block communication, and prevent future success.

Discussion: At the kick-off to a new software development project, rather than invite people to “attend” an event that is “thrown” for them, encourage them to organize a party, cookout, pot-luck, song-fest, or storytelling event among themselves. In the process, they will learn about each other, to trust each other, and be encouraged by having a success.

Alternatively, the team might simply work on an easy aspect of the problem to be solved, provided it is something fairly clear that will result in “success” quickly. For instance, the team might initially work profitably on a short presentation, poster, or scenario.

Solution: Therefore: *When bringing new teams or organizations together, it is useful to begin with a small success.* In this way, people begin to learn about each other and trust each other. This makes tackling more difficult problems later relatively easier.

Pattern Varieties: Culture, User Groups, Task Types, and Technologies.

Typically, work in Pattern Languages has stressed the universality of Patterns and we hope that there is enough flexibility in the Patterns mentioned above to allow for cultural variation. However, we also hypothesize that there may be useful Pattern Languages for various cultures, user groups, task types and technologies. For example, there may well be Patterns that are especially useful for Chinese cultures or sub-cultures. Similarly, there are probably Patterns which are particularly useful when designing for young children or the elderly. Other Patterns may be associated with types of tasks and contexts. For example, if one is designing for emergencies, there are

special considerations because of the way people process information under stress and because of the consequences and necessary timeliness of decisions. On the other hand, designing for entertainment brings a different set of considerations into play. Finally, various technologies may also require specialized Patterns. Displaying information on a large screen may require different Patterns than displaying information on a small hand-held device. The designer faced with the particularities of a culture, user group, task, and technology may still learn from the cumulated wisdom of others in all these domains as well as from more generic Patterns.

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