Interaction Pattern Languages: A Lingua Franca for Interaction Design?


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Introduction

Patterns and Pattern Languages

• Used in Architecture and Urban Design for two decades
• Has now caught on in object oriented programming
• And seems to be in the air...
Introduction

There are many views about how and why patterns are useful

My view differs from most...
Overview

The Need for a *Lingua Franca*

The Spirit of Patterns: The Re-design of Manteo

The Theory of Patterns: *A Pattern Language*

Pattern Languages for Interaction Design

Closing Remarks
Overview

The Need for a *Lingua Franca*

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Closing Remarks
The Need for a *Lingua Franca*

Design is a distributed social process: communication is key!
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...but it’s more *complicated* than the triangle suggests
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...much more complicated

- Visual Designers
- Industrial Designers
- Prototypers
- Psychologists
- Interaction Designers
- Engineers
- Writers
- Anthroopologists

**Organizations**
- Line Managers
- Executives
- QA
- MIS
- Marketers
- Product Managers

**Users**
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...and the “users” add to the complexity too…

Designers

- Visual Designers
- Industrial Designers
- Prototypers
- Psychologists
- Interaction Designers
- Engineers
- Writers

Organizations

- Line Managers
- Executives
- Marketers
- Product Managers
- Marketing
- QA
- MIS

Users

- Accountants
- Lawyers
- Jurists
- Impresarios
- Haberdashers
- Grocers
- Designers
- Building contractors
- Carpenters
- Doctors
- Engineers
- Farmers

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...and several trends are increasing the complexity

- new technologies
- miniaturization and decreased cost
- ‘solutions’, customization, vertical markets, and the web
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...and there’s one other problem: the triangle is upside down!

Organizations  Designers  Users
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Communication is key

That is, part of the solution involves making knowledge accessible to all ‘designers’ (i.e. inhabitants of the triangle)

I believe we are faced with a problem of representation
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Characteristics of good representations:

- encourage focus on context
- not deeply embedded in a particular discipline
- require little experience
- are ‘open’

Some examples:

- Stories, scenarios, rough prototypes...
- ... and design patterns
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The Spirit of Patterns: The Re-design of Manteo

Designer: Randolph T. Hester

The Project

• Revitalize the town of Manteo, North Carolina

The Challenges

• Revitalize the town without destroying its character
• Getting inhabitants to articulate what was important to them
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Process: Getting information from inhabitants

- Surveys
- Behavior Mapping

The surveys produced rather generic findings. People spoke of friendliness and informality, but not of much that was actionable. So the design team began doing observation and behavior mapping.
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Observation and Behavior Mapping (Dutchess Restaurant)
Next Step: Identifying Important Places

- Made and validated a list
- Published questionnaire in local newspaper
- Asked residents to rank places
- Result: a ranked and weighted list

And at this point, something striking happened!

One resident, noting that about a dozen places ranked above the church and cemetery, referred to the list as Manteo’s “sacred structure.” ...The name caught on, and the design team picked up on it and created a map...
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The Sacred Structure Map

- Jules Park
- The Dutchess restaurant
- A gravel parking lot
- The post office
- The marshes
- Locally made street signs
- Fearing’s soda shop
- The church
- The cemetery
- ... et cetera
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The Importance of the Sacred Structure Map

- It shifted the focus of discussion from abstract to concrete
- It became a shared representation
- It legitimized people’s concerns

The ‘sacred structure’ map became a shared representation, that gave the inhabitants concrete things to talk about. A crucial role the map played was in legitimizing the importance of these places. Most of the places were quite humble, and in many cases the townsfolk were initially a bit embarrassed by them. But as they discovered that others shared their feelings, their attitudes changed.
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The Sacred Structure Map as a Tool

• It became a measuring rod
• A tool for negotiation
• And, ultimately, something of an institution

Notice the power of linking physical places and social behavior. The social behavior legitimatized the value of the places, and the concrete nature of the places enabled them to serve as a metric for the impact that a particular redevelopment plan might have on the social fabric of the town.
Seven years later...

- preservation
- redevelopment

When Hester re-visited Manteo, he found that the plan had been quite successful. Redevelopment had succeeded, and at the same time the inhabitants felt that the character of their town was intact. And everyone still spoke of the town’s ‘sacred spots.’
Manteo’s Sacred Structure as a set of patterns

- The power of the particular to focus talk
- The connection of the physical and the social
- The power of a *shared* representation
- Language is far more than talk

Notice that the design team didn’t just create a tool for doing design. They created something that the people of Manteo used to talk about their physical and social environment, and to shape its evolution, long after the design team had departed.
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The \textbf{Theory of Patterns: A Pattern Language}

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Goal: The Quality Without a Name

A network of 253 patterns

that try to connect individual and social behavior to the physical features of a place
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The patterns cover a wide range of scales. For example:

- City Country Fingers
- Shopping Streets
- Street Cafe
- Farmhouse Kitchen
- Sunny Porch
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The Alexandrian Pattern Form

- **Diagram**
- **Name** (e.g.... Street Cafe)
- **Context**—larger patterns
  (e.g... Identifiable Neighborhood, Activity Nodes, Public Square)
- **The Problem or Goal**
- **Background** (forces in tension, evidence, rationale)
- **Solution summary**
- **Context**—smaller scale patterns
  (e.g... A Place to Wait; Sitting Wall; Opening to the Street)
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*A Pattern Language* is Actually a Meta-Language

How to generate a pattern language for a project...

1. Find the pattern that fits the scope of the project
2. Make a list of the patterns it points to...
3. Don’t include all patterns
4. Find the next largest scale pattern in the list, and repeat 2 – 4
5. Now add your own patterns
6. “And of course, if you want to change any patterns, change them.”

Patterns as lenses to ‘read’ the local environment and culture
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Useful Representational Characteristics

- Concrete prototypes
- Bridges the social and the physical
- Expresses rationale
- Expresses values explicitly
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How successful is it?

- Widely used, but not by architects
- Alexander does not see it as wholly successful
- And very successful in the object oriented programming community
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Question:
• Defining a ‘language’ for designing cities and buildings is one thing; its quite a different thing to define a language for designing interactions in general...

What might an interaction pattern language be like?
Some Wedding Patterns

- The Final Fifteen Minutes — (Bride)
- The Gift Table
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New Elements in the Wedding Pattern Language

- Events: The ceremony, the reception, ...
- Roles: Bride, Groom, Ushers
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Objection: weddings are a relatively easy case.

- They’re small, limited in space and time
- And they’re old: some traditions go back centuries, even millennia

Does it make sense to have an Interaction Pattern Language for HCI?
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Answer: It depends...

...on what you’re trying to apply the approach to...

...and on what you’re trying to achieve

- Descriptive or prescriptive?
- Facilitate noticing or solving?
- Trying to just do better or to achieve the Quality Without a Name?
- Use as *lingua franca* or to support generalization and reuse?
My Own Goals

- a way to *describe* workplaces
- make it easier for stakeholders to *notice* important patterns
- enable stakeholders to *talk* about and *participate* in design
- create shared, *social artifacts* that stakeholders can use
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One Exploration: Unpacking a field study

• Take Bellotti and Bly’s study* of a design consulting firm
• And recast it in terms of patterns... A Design Consultancy language

Some of Alexanderian spatial patterns are relevant

- The Flow through Rooms
- Office Connections

Note

- Perhaps we can re-use, or transpose Alexandrian patterns
New patterns — fairly simple ones — are needed too:

- Model Shop
- Central Scanning Stations
- Open Plan Offices

Notes

- Some of these generalize (Resource Oasis)
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Patterns for events are needed...

- Client Presentation
- Kibitzing

...as are patterns for roles

- Manager
- Designer
- Receptionist
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And finally some higher level patterns begin to capture the sense of the organization...

Locally Mobile Workers

- Resource Oasis
- Face to Face Meetings
- Deskbound Communications
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Maintaining Mutual Awareness

• Kibitzing
• Doing-a-Walkabout
• Blanket Email

Note

• Kibitzing is supported by Resource Oasis, Open Plan Offices, etc....
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Receptionist as Hub

• Conference Room Coordinator
• Reception Area
• Gatekeeping
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Uses of the Design Consultancy language

• For describing the workplace
• For What-If’ing the impacts of new technology
• As a lingua franca for inhabitants
• As a starting point when studying a new workplace
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Might also support synthesis

- Receptionist as Hub is a social coordination mechanism
- Other studies show ways in which objects are used as coordination mechanisms

Drawbacks

- Few professional mechanisms for rewarding this type of synthesis
- In fact, ethnographers and researchers in general may be horrified!
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Closing Remarks

I have a particular idea of what patterns might do for us

- Describe a particular workplace
- Provide a what-if mechanism for reflection
- Serve as a seed for generating new pattern languages
- Act as a lingua franca, legitimizing and empowering ‘users’

And perhaps:

- Increase accessibility of research results
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Others are interested in patterns for other reasons
  • Capture known design solutions in a general way
  • Support training and discussion within a design organization
  • Achieve the Quality Without a Name

And in their application to other levels
  • UI Implementation
  • User Interface
  • Organization Design
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I encourage you to explore!

- If you keep noticing the same problems/solutions again and again, try to write them down as patterns
- Check out Alexander (or other pattern sets) and see if they can help you notice new things
- Try collecting patterns, or mining them from research

I claim that even a few patterns can help you out... you don’t need an entire pattern language!
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I hope I’ve left you with:

- A vision of design as a communicative process
- A vision of designers as creators of social artifacts (a la Manteo)
For more information...

References, in order of appearance


• Bellotti and Bly. Walking Away from the Desktop Computer: Distributed Collaboration in a Product Design Team. CSCW ‘96.

For more information on patterns in HCI, OOP, etc..

• www.pliant.org/personal/Tom_Erickson/InteractionPatterns.html